

# EB ElcoBrandt

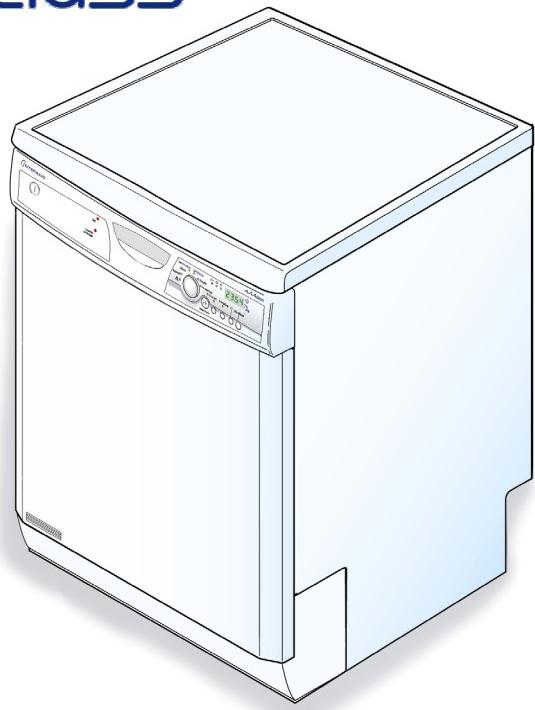
Brandt Customer Services

WASHING

## The ATLANTIS Dishwasher



AAAClass



TECHNICAL  
TRAINING



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## **1 - INTRODUCTION**

The objective is simple : the matter is to make the dirty dishes clean. The quantity, nature, dirt level of the dishes, the cleaning product used, or even the water hardness may act against the expected result.

So far, all these parameters have been left to the assessment of the consumer, who alone assumed the responsibility for poor wash. Increasingly, the new ATLANTIS dishwasher consider all these factors.

The intelligent use of some sensors enables the electronics to adapt the run of its auto-programs, in order to guarantee the result while trying to save water, energy and time, and this, whatever the load or dirt rate is.

The new ATLANTIS dishwasher provides reduction in water, energy consumption, and cycle times while assuring A level in washing and drying.

To perform the dishwasher maintenance, the technician has to identify the cause(s) at the origin of the consumer's claim. To do so, he has to make a precise diagnostic in order to adopt the appropriate for the encountered problem.

The new ATLANTIS dishwasher proposes a programme of aid to diagnostic intended for the after-sales department. Only the rigorous and systematic implementation of this programme can definitely assure the action reliability.

A properly performed after-sales action should favour the development of customer's loyalty to the sales outlet, to the sign and also to the trademark concerned.



## 2 - THE ENERGY LABEL

### 2.1. - What you must know

Washing machine, dryer and dishwasher are three appliances likely to weigh heavy on the electricity invoice if you choose model poorly classified from the energetic point of view. Washing machine and dishwasher each consume about 250 kWh a year. For a few years, the manufacturers have made efforts on the water consumption, which has a direct effect on the power consumption at the moment of the heating.

Initiated by the European Community, this labelling is now compulsory in France for most household electrical appliances. The classification from **A** (the most economical) to **G** (the most avid on electricity), enables the consumer to locate at a glance, the various models proposed.

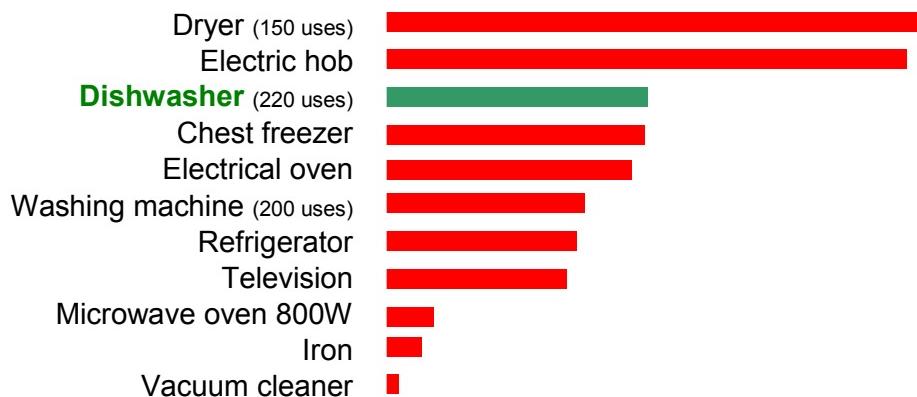
For washing machines, an additional indication concerning the wash and spin, complements the information concerning the power consumed.

This mention must appear compulsorily on all the dishwashers marketed from the 1<sup>st</sup> of January 2000.

The "Bio" programme is selected to laboratory tests.

Energy		Dishwasher
Manufacturer	LOGO	A B C 1 2 3
More efficient	A	A
B	B	
C	C	
D	D	
E	E	
F	F	
G	G	
Less efficient		
Energy consumption kWh/cycle <small>(In accordance with programme recommended by the manufacturer)</small>	0,75	
Actual energy consumption will depend on how the appliance is used		
Washing performance A: higher G: lower	A B C D E F G	
Drying performance A: higher G: lower	A B C D E F G	
Capacity (place settings)	12	
Water consumption	12	
Noise (dB(A) re 1 pW)	45	
Further information is contained in product brochures		
Norm EN 60456 Dishwasher label Directive		

### 2.2. - Consumption level of the main appliances\*



**A good use of the deferred start you to benefit by off-peak periods and, therefore, to save electricity.**

### 3 - THE DISHWASHER

#### 3.1. - The customer's expectations

- Perfectly clean dishes
- Dry dishes
- Sparkle of glasses and stainless steel
- Respect of delicate dishes
- Rapidity
- Easy to use
- Low sound level
- Low consumption (water, electricity and products)



#### 3.2. - The advantages of the dishwasher

A family of four persons devotes 55 minutes a day on average to do dishes, against 20 minutes when it has a dishwasher.

The cost of a dishwasher is written off in only 3 years and its estimated lifetime is approximately 10 years. Washing up in machine is much more hygienic because dishes are perfectly washed and dried without contact with external elements (towels, hands or work surface), which often convey a number of bacteria.

ATLANTIS	0,25€	DISHES DONE BY AND	0,88€
Water (12 litres)	0,03€	Water (70 litres)	0,18€
Energy (0.75 kWh)	0,08€	Energy (4,8 kWh)	0,53€
Detergent product	0,10€	Detergent	0,14€
Rinsing product	0,01€	Accessories	0,03€
Salt	0,03€		
<b>Annual cost</b>	<b>91,25€</b>	<b>Annual cost</b>	<b>321,20€</b>

#### 3.3. - The sound level

Noise remains a selection criterion essential despite the fact that indicating it on the "Energy Label" is not compulsory. For the ATLANTIS dishwasher, the level is comprised between 45 and 51 decibels (dB). It must be known that a variation by 3 decibels multiplies by two the sound volume and this is only below 50 decibels that the dishwasher can be operated late at night.

To achieve this result, several improvements have been made to the ATLANTIS dishwasher :

- PTC and double auxiliary winding for certain asynchronous cycling pumps
- Reinforced acoustics (double-thickness bitumen, felts, phonic seals)
- Passage of the entire spraying circuit in the tank.

#### 3.4. - The drying

The drying result is an important point that appears on the "Energy Label".

The ATLANTIS dishwasher proposes 3 marks for the drying (A/B/C), according to the dishwasher level of equipment.

### 3.5. - Operating principle

Dirt adheres to dishes with a certain energy that is to be overcome to get rid of it. It is, therefore, necessary to implement the following actions:

#### ➤ The mechanical action (aspersion)

Its purpose is to project the detergent bath onto dishes to remove and drag the dirt. The ATLANTIS dishwasher is provided with 4 spraying levels:

- Two that spray the lower and upper baskets
- A third one, multidirectional (small shower) attached to the tank ceiling prevents residues from depositing on the tank ceiling and falling during drying
- A fourth one, carried out using a rotary nozzle assembled to the lower winch in certain models, is used to better clean the bottom of saucepans (it is associated to a specific program).

Spraying the dishes is performed by the winches, which turn simultaneously or not (alternate spraying) under action of the water pressure in spraying nozzles. The water thus projected onto dishes falls in the tank bottom where it is purified by flowing through four filters. These filters perform continuous recycling of the detergent solution until cycle end.

The water is then returned, pressurised, by the circulation pump (approximately 50 litres / minute) into the spraying arms. Such a circulation and the low volume of the cycling unit volume (1.85 litres) are used to have a total water consumption relatively low (12 litres), as each piece of dishes is washed by only one volume of water (approximately 4 litres).

After wash, the wastewater is evacuated, the clear water, cold for the first rinse rinses dishes, and then a second rinse, hot, precedes the drying.

#### ➤ The thermal action

The progressive temperature rise and the achievement of an enzymatic dwell at 50°C are used to obtain the best conditions of elimination of all the types of dirt. Actually, the action of the various components of detergent products varies according to the bath temperature.

#### ➤ The chemical action

When dishes are done in machine, the mechanical action is limited (as compared with dishes done by hand), and must therefore be compensated for by a more powerful chemical action.

To the mechanical and thermal energy of the machine are added the physical-chemical and biological actions of the detergent.

As the nature of dirt is very varied, it is not always eliminated in the same way.

This is the reason why detergents contain very different components and, in particular, enzymes.

#### ➤ The duration.

All is not as simple. If we detail the operation, we remark that an essential element is missing: the water. Actually, without water, there is no wash! The water will, with the support of active principles of the detergent, destroy, eradicate, dissolve and emulsify the dirt present on dishes. It will do so all the better since the machine will water the dishes and heat the water.

The wash result depends, therefore, simultaneously on 4 factors :

- **The washing product**
- **The water**
- **The temperature**
- **The mechanics**

A good wash result can, therefore, only be obtained if all these conditions are respected.



Spraying arms project onto dishes (**mechanical action**) a solution of detergent products (**chemical action**) progressively heated by a resistor (**thermal action**)

## 4 - THE WATER

The water covers, in the nature, a cycle due to its continuous evaporation under the action of the sun heat; this vapour is condensed into fine droplets to produce clouds, which are transformed into rain when they meet a cold air draft.

It is possible to assert practically that this is from the moment where the rain starts falling that it begins to lose its purity. Actually, during its fall, the rain meets in the atmosphere a certain number of impurities of variable nature, among which carbon gas with which it is combined to make up very slightly acid soft water.

This water, when it arrives on earth, flows by streaming and infiltrates the cracks to reach the groundwater tables and artesian tables that feed sources and wells. In both cases, this water dissolves and carries with it a part of the mineral salts it meets (limestone, magnesium, etc.); this is this last process, which causes its mineralisation. The more the water is mineralised, the **harder** it is !

The water hardness is expressed in degrees TH.

1 French degree TH corresponds to 10 mg of  $\text{CO}^3\text{Ca}$  per litre of water.

from 0° to 5° TH	very soft water
from 5° to 15° TH	soft water
from 15° to 30° TH	half-hard water
from 30° to 45° TH	hard water
More than 45° TH	very soft water

### 4.1. - The noxious effects of limestone

Any water contains traces of minerals, mainly limestone, magnesium and iron originating from the ground. The higher the content is, the harder the water is. These minerals reinforce the dirt catch to fabric fibres, and the eliminated one tends to be fastened again to them. Limestone reduces the efficiency of the washing product, makes the laundry rough, makes whites turn grey, fades colours and accelerates the laundry wear.

### 4.2. - The effects of too soft a water

Too soft a water also reduces the washing efficiency (reduction in mechanical action), causes foam overflows, leaks and accelerates the appliance ageing (the water is more aggressive).

#### 4.3. - The water softening : a vital function

The system water contains soluble calcium hydrogen carbonate. Hot, the calcium hydrogen carbonate decomposes and gives insoluble calcium carbonate (fur).

The water softening is, therefore, a vital function.

This is the reason why all dishwashers are fitted, from the origin, with water softeners.

Softening is, in fact, the substitution of calcium ions contained in the system water by sodium ions contained in the salt.

To perform this substitution, the water is circulated in the heart of the softener that contains small balls of synthetic resin.

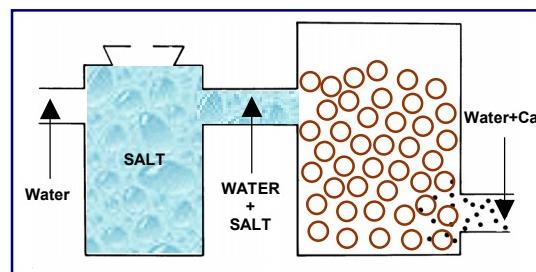
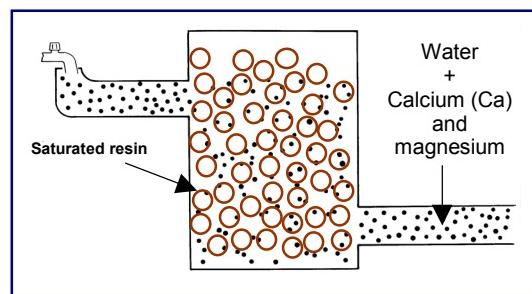
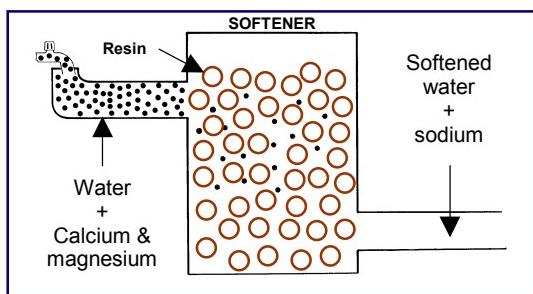
Combined with sodium, this resin sets the limestone particles (calcium or magnesium) contained in the system water. To do so, the resin exchanges its sodium ions for the calcium ions.

After a certain number of fillings, resins are more or less saturated with limestone and start becoming ineffective to soften the water. It is then necessary to regenerate them.

#### 4.4. - The regeneration

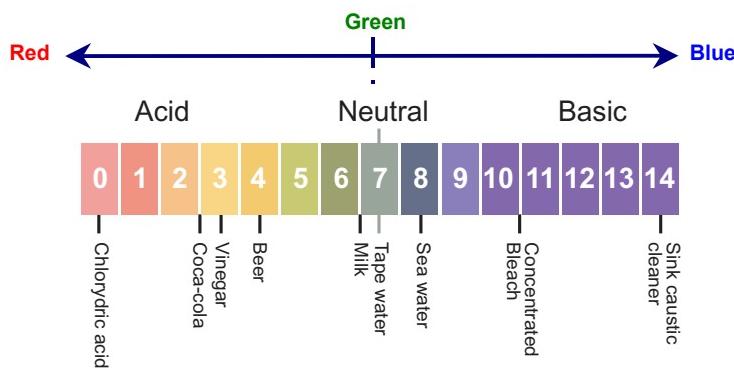
To regenerate the resins, it is necessary to eliminate the limestone from them with sodium (salt).

This regeneration, automatic and "floating" on "all electronic" ATLANTIS dishwashers, is initiated by the board according to the adjustment performed on the putting into service and to the number of filling baths already performed.



#### 4.5. - The pH (hydrogen potential)

Maybe, you have already remarked on labels of cleaning products or drinks the pH indication followed by a number. Maybe, you know that the pH is related to the acidity of a solution, sometimes verifiable by its taste. If you taste successively lemon juice, coffee and water, you will be able without any difficulty to rank these three liquids by level of acidity.



The pH paper is used for approximate, simple and rapid determination of the pH of a solution. This paper, which does not provide exact determination of a value of pH, rather gives an idea of the pH range of the solution, namely:

- Acid for a pH smaller than 7
- Neutral for a pH equal to 7
- Basic or alkaline for a pH greater than 7

Water, mineralised or not (and, therefore, salt water) has a pH very close to 7.

##### ➤ A few acids

- Vinegar (acetic acid)
- Aspirin (acetylsalicylic acid)
- Lemon juice (citric acid)
- Coffee
- Vitamin C (ascorbic acid)
- Dishwasher rinsing product

##### ➤ A few bases

- Household cleaning products (ammonia)
- Soap (potassium hydroxide)
- Concentrated bleach
- Sink caustic cleaner (sodium hydroxide)
- Detergent products for washing machine and dishwasher

Alkaline pH is necessary for the washing bath to ensure maximum efficiency.

#### 4.5.1. - Analysis of traces or deposits on dishes

Replacing a component supposed defective does not constitute the essentials of the maintenance of a dishwasher. A dishwasher, for which the consumer signals a bad wash result, cannot be repaired so easily. Actually, to solve this type of claim, it will always be necessary to precisely identify the nature of the trace or residue present on the piece of dishes. Only this precise identification can indicate us the probable cause at the origin of the defect.

The matter is not to precisely measure the pH but simply to detect the origin of the white traces or of the residues.

So, when the paper turns red we are in the presence of an acid solution (rinsing product for example), if it turns blue, then it is an alkaline solution (washing product).

## **5 - THE DETERGENTS**

### **5.1. - The products**

#### **5.1.1. - The detergents**

Contrary to many received ideas, all detergents are not identical. They contain specific ingredients. So each type of detergent has its own features and will be particularly suited to such or such type of wash or of dishes.

- Detergent products are alkaline.
- They have, therefore, a pH comprised between 9 and 11.
- They are classified IRRITATING.



##### **➤ The powder**

It is perfectly efficient under difficult wash conditions (very hard water or very dirty dishes) and is suitable for washing silver and decorated glasses.

##### **➤ The tabs**

The dosage ease certainly explains the development of their market share. The dissolution time can vary from 10 seconds to over 10 minutes. When selecting a fast or short program, it's better to use powder.

##### **➤ The liquids**

It is particularly more suitable for fragile dishes and respects the decoration.

#### **5.1.2. - The rinsing product**

It enables water to flow more rapidly and more completely from dishes, so preventing the formation of traces during drying. It neutralises alkaline residues of the detergent during the final rinse and favours the drying of dishes. Its acid pH is comprised between 1 and 3. It must be compatible with the detergent (it is preferable to keep the same product trademark).

#### **5.1.3. - The regenerating salt**

It is used to regularly regenerate the water softener resins. It protects the appliance and dishes from layers of sediment. Its pH is neutral and equal to 7.

#### **5.1.4. - The "all-in-one" products**

New products integrate in one and the same dose the 3 functions essential to the right operation of the dishwasher:

- The wash function
- The salt function
- The rinse function

In cases of hard and very hard water (hardness greater than 35°TH), it is indispensable to use regenerating salt. Some manufacturers specify that the wash must be done at 50°C maximum under penalty of freeing too early the various actions of the product and altering the final result, or even damaging some pieces of dishes.

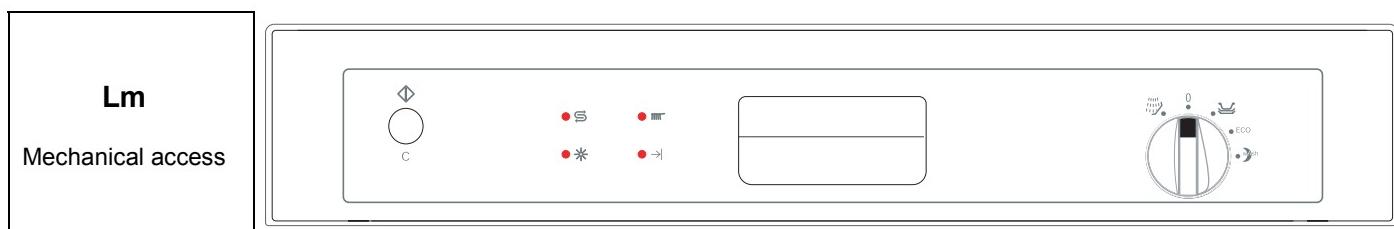
## 6 - THE ATLANTIS DISWASHER

### 6.1. - Presentation

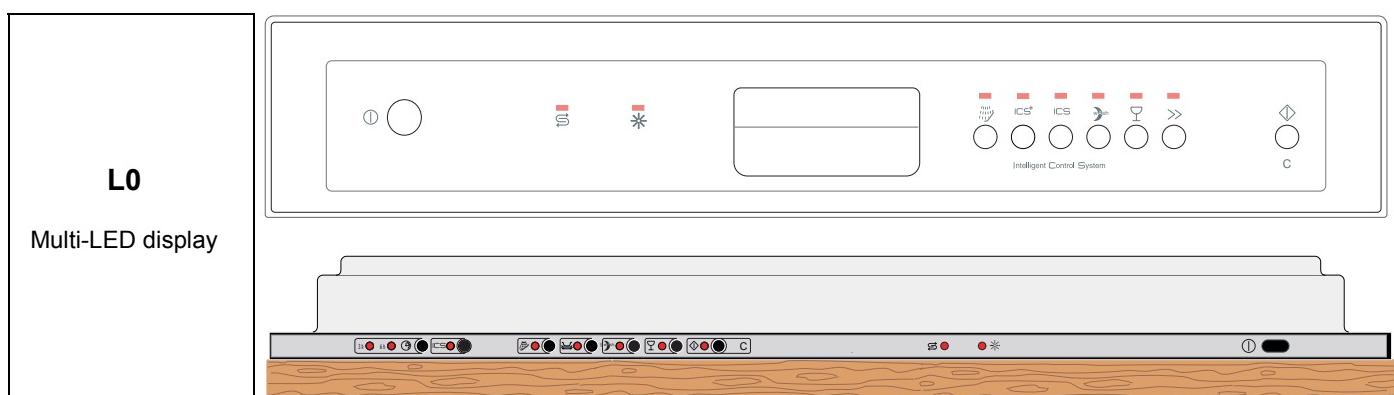
The ATLANTIS frame proposes a large choice of models: free installation, slot-in or dressable, with curved or square outlines; and also many options (alternate spraying, saucepan nozzle, insulation, fan, condenser, turbidimeter, mezzanines ...).

5 levels of electronics exist, defined by the type of access :

3 'all electronic' models, from L0 to L3, and 1 'mechanical access' model, Lm.



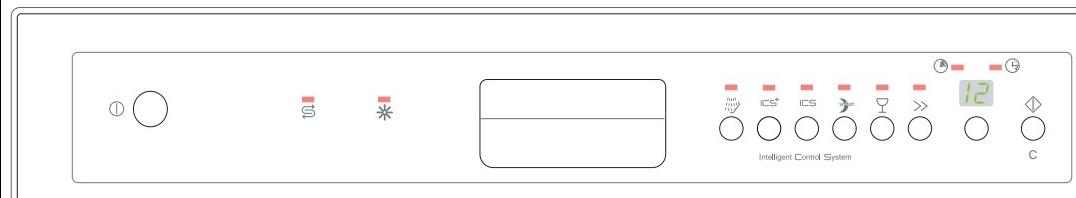
- Salt light
- Rinsing light
- Washing light
- End of programme light
- Start/Cancel button
- Programmes Knob



- Delayed start button
- Programme buttons
- Start/Cancel button
- Salt light
- Rinsing light
- On/Off button

**L1**

Display 2 digits

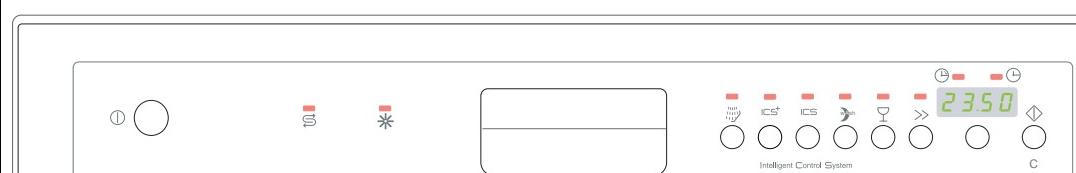
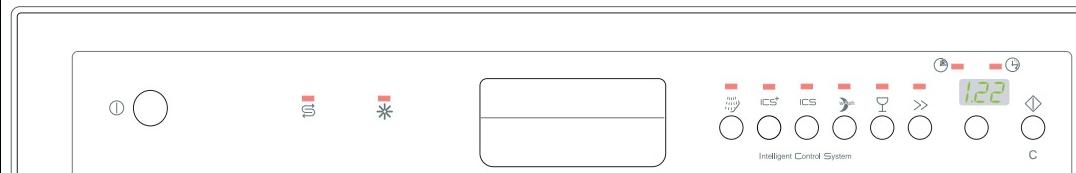


- On/Off button
- Salt light
- Rinsing light
- Programme buttons
- Display
- Delayed start
- Start/Cancel button

**L2**

Display 2 digits  
or

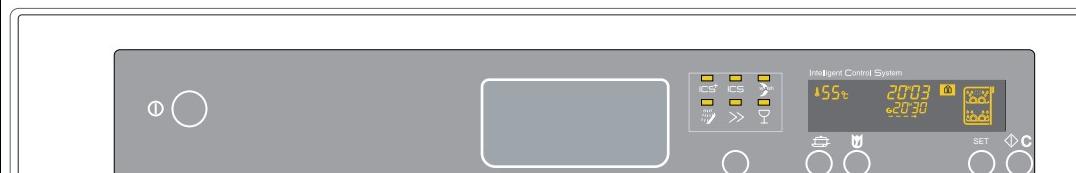
Display 3 digits  
(clock)



- On/Off button
- Salt light
- Rinsing light
- Programme buttons
- Display
- Delayed finish
- Start/Cancel button

**L3**

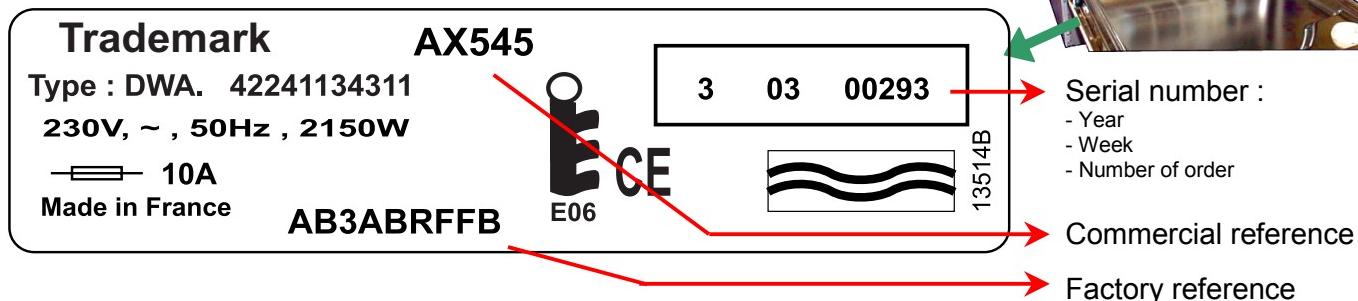
LCD display



- On/Off button
- Programme buttons
- Display LCD
- Delayed finish
- Start/Cancel button

## 6.2. - Identification of the reference

The identification plate is on the right hand side of the double door.



### ➤ Interpretation of the factory reference :

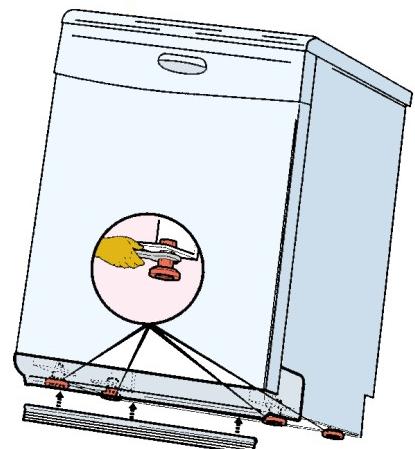
<b>FACTORY REFERENCE</b>		<b>REMARK</b>
<b>1<sup>st</sup> characteristic</b>		<b>Chassis</b>
A		<b>ATLANTIS</b>
<b>2<sup>nd</sup> characteristic</b>		<b>Type of installation</b>
A / B / C	Free-standing with entasis	
E	Free standing	Not cabinet
F		Cabinet
G		Cabinet & Cooker top
H		Not cabinet & Cooker top
I		Cabinet & raised element
K	Can be encased	Cabinet & raised element
L		Not cabinet & raised element
M		
O	Integrate model	raised element
Q	Fully integrated model	raised element
<b>3<sup>rd</sup> characteristic</b>		<b>Level</b>
0	L0	Display Leds
1	L1	Display 2 digits
2	L2	Display 3 digits
3		Display 4 digits
4		Display LCD
8 or 9	Lm	Buttons and/or Programmes knob
<b>4<sup>th</sup> characteristic</b>		<b>Equipment</b>
A	- With flap-valve (alternated spaying) - Air drying	With dirt sensor
B		Without dirt sensor
F	- With flap-valve (alternated spaying) - Drying by condensation	With dirt sensor
G		Without dirt sensor
H	- Without flap-valve - Drying by condensation	Without dirt sensor
L		Without dirt sensor
M	- Without flap-valve - Natural drying	With dirt sensor
<b>5<sup>th</sup> and 6<sup>th</sup> characteristic</b>		<b>Brandt code</b>
<b>7<sup>th</sup> and 8<sup>th</sup> characteristic</b>		<b>Country code</b>
<b>9<sup>th</sup> characteristic</b>		<b>Index</b>

### 6.3. - Fitting

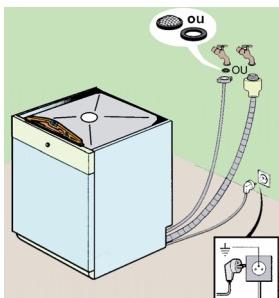
#### 6.3.1. - Levelling by adjusting the feet

The dishwasher must be well balanced and stable. The four feet can be adjusted, so adjust them if necessary using a screwdriver. If the feet are poorly adjusted, this decentres the door and makes the dishwasher wobble, causing leaks. For dishwashers that can be built-in, fitted with rear feet adjustment via two knurled knobs on the base of the machine, at the front, use a screwdriver.

For better noise insulation, install the flap supplied with the dishwasher.



#### 6.3.2. - Water connections



Length of the water supply pipe : 1.50m

Flow : 10l/min. minimum

Tap : with threaded end, 20/27mm

Pressure : 1 bar to 10 bars

Connecting the hot water : Check that the original hose is designed for connection to the hot water supply.

#### 6.3.3. - Electrical connection

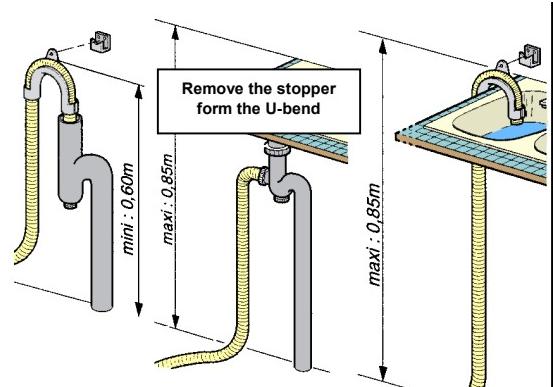
- Mains voltage : 220-240V
- Fuse : 10A, 13A or 16A

The socket outlet must be grounded to earth. The machine must be installed so that the socket remains accessible. Do not use an electrical extension, a double socket or an electrical timer. The installation must comply with the country's prevailing norms.

#### 6.3.4. - Draining away the waste water

Connect the drain hose :

- To a ventilated siphon
- To a sink U-bend
- Directly to a sink



#### 6.3.5. - Built-in unit and faceable units

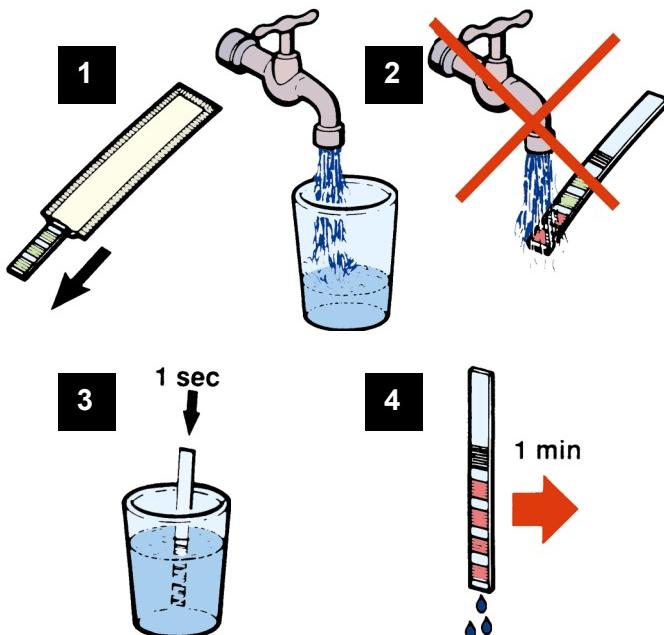
- Remove the top board
- Adjust the height of the feet, if necessary
- Fix the dishwasher to the worktop
- Cut a laminated panel to the following dimensions (in mm) 595 x 585 with a maximum thickness of 4mm.
- Adjust the tension on the springs, if required

#### 6.3.6. - Dishwasher with built-in hob

The dishwasher combines two functions, which means that it must be connected to the wall so that it is completely safe to use. This is to prevent a child, who may accidentally lean on the door while the loading or unloading the dishes, from causing a hot (boiling) pan resting on the hob to fall, resulting in severe burns or scads. **It is essential that these instructions be observed.**

## 6.4. - Adjusting the water softener

### ➤ Measuring the water hardness



After checking the hardness of the water from the tap, either with the help of the small strip provided with the appliance, or with the AQUA-TEST, adjust the softener on the position which corresponds to the degree of hardness you have measured. It is very important to respect the setting recommended, as follows :

Water which is insufficiently softened ( $> 15^{\circ} F$ ) will leave traces of lime on the glasses.

Water which is too well softened ( $< 5^{\circ} F$ ) could bring about an irreversible opalescence of the glassware.

Testing strip	Water hardness	Setting	Salt required
White	0 à 10°TH	0	No
Orange	10 à 18°TH	1	Yes
Orange	18 à 25°TH	1	Yes
Orange	25 à 40°TH	2	Yes
Orange	40 à 55°TH	3	Yes
Orange	55 à 70°TH	4	Yes
Orange	> 70°TH	5	Yes

### ➤ Setting on the control panel (L0, L1, L2 and L3)

Using the keys of the control panel following the explanatory notes in the appliance's Instructions for use.

On these models, the distributor's cursor is held at position 4 and the regeneration does not occur with each cycle, but sequentially, when the resins are saturated.

The microprocessor counts and holds in memory the number of fillings carried out, and according to the hardness programmed when the setting was effected, it sets off a regeneration at the appropriate time. The adjustment of the hardness is done with the help of a combination of keys (see Instructions). The visualisation of the adjustment, depending on the model, is done

- either with the help of the programme indicator lights,
- with the digital display.

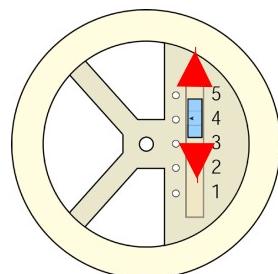
When the machine is first switched on, the setting is 10-25°F.

- the display shows **d1**
- the "drenching" light permanently lit

For water which is extremely hard ( $> 70^{\circ}F$ ), you need to replace the cursor to regulate the softener on the MAXI position (number 5).

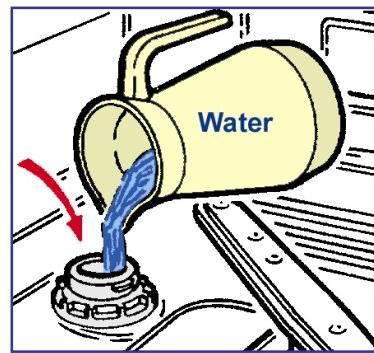
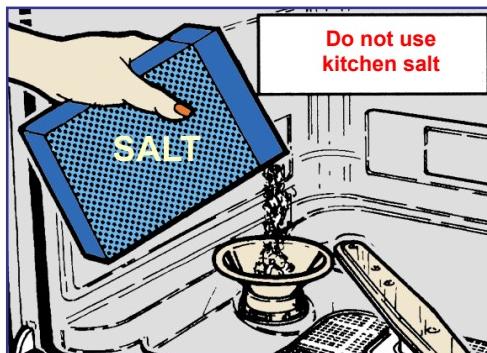
### ➤ Adjustment via the cursor inside the tub (Nm)

The setting of the softener is done by a cursor which is found inside the tub, on the left hand side.



➤ **Filling the regenerating salt reservoir**

In order for the softener to work correctly, when the machine is first put to use the salt container should be filled with water (after the regenerative salt has been poured in). Be sure to screw the salt container's lid down securely. Failure in doing this or in screwing it properly on its threads will result in an abnormal consumption of salt and traces of salt on the dishes.

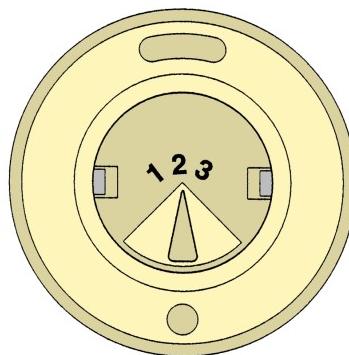


**6.5. - Setting of the rinsing agent dispenser**

Fill the rinsing agent dispenser, pouring in at least the whole of the sample provided. This rinsing agent is essential as it contributes to drying, makes glassware shine more and prevents the formation of streaks and traces of spots on the dishes.

Hold 120 ml (approximately one glassful).

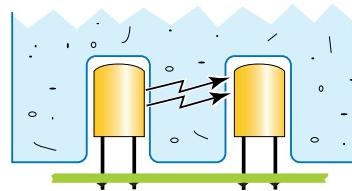
The dispenser comes with a visual gauge and, depending on the model, with an indicator light (ballcock controlled by ballcock and ILS).



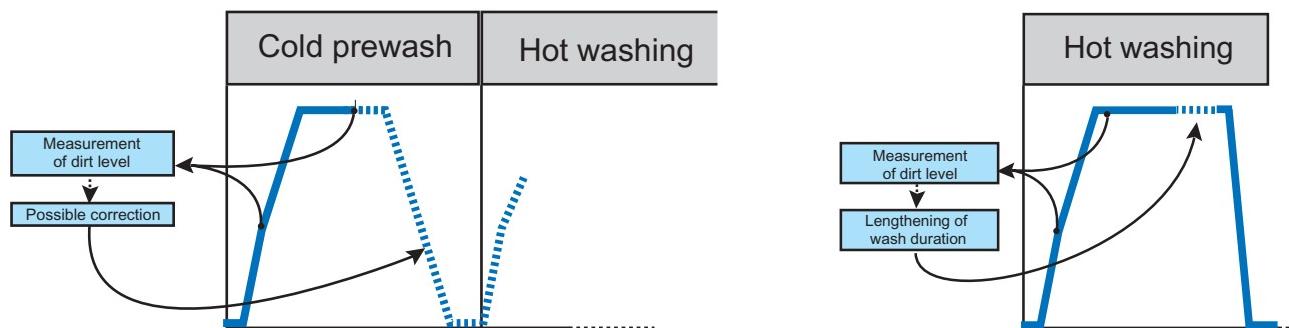
The original setting is in the middle (Medium position : setting 2).

## 6.6. - Use of the sensors in new wash recipes classified A A A

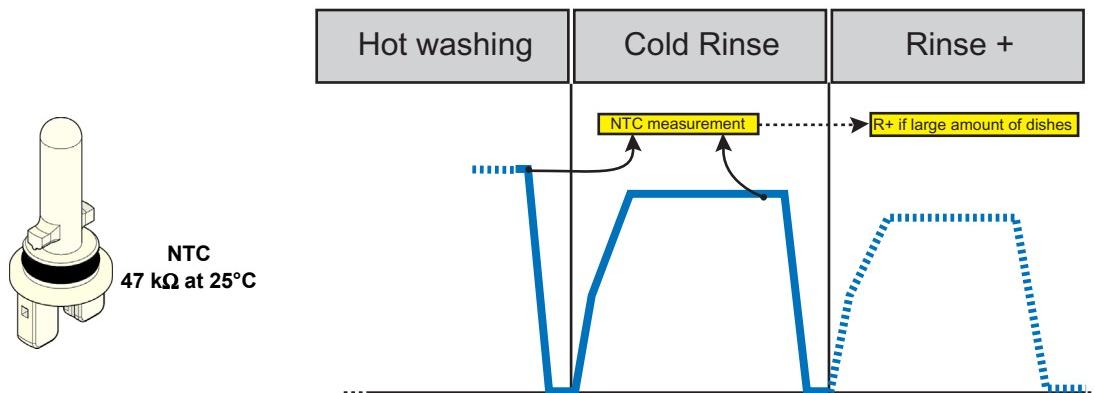
The intelligent use of some sensors enables the electronics to adapt the run of its auto-programs, in order to guarantee the result while trying to save water, energy and time, and this, whatever the load or dirt rate is.



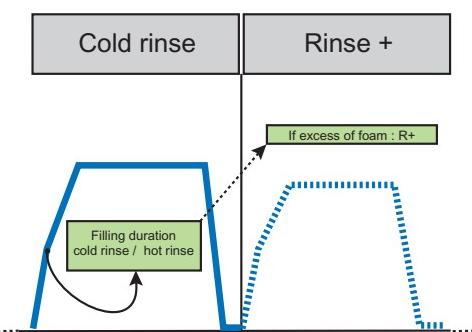
- **A turbidimeter** (sensor consisting of an infrared emitter and a phototransistor used to assess the state of turbid liquid) is located on the transparent duct of the spraying valve. It enables the printed circuit board to assess the dirt level from the cycle start. This measurement is used to optimise the cycle duration (prewash possible or lengthening of the wash duration) and, therefore, the water consumption, according to the dirt level of dishes.



- **The NTC** enables the printed circuit board to estimate the quantity of dishes. Because, this board measures the water temperature rise at the first cold rinse, and compares it to the water temperature at the very first filling. This temperature rise, which is due to the heat stored up by dishes during the previous hot wash, enables the board to know the type of load. This allows to perform an additional cold rinse in the case of a significant amount of dishes and, therefore, of dirt.



- **The pressure controller** enables the printed circuit board to know if dirt remains on wash completion, in order to initiate, if necessary, the additional cold rinse. Because, if there is much dirt and not enough detergent during the wash, there is a risk of emulsion, which causes an excess of dirty foam difficult to evacuate. Draining will then be incomplete and the time to reach the high level on next filling will be shorter. The board compares this time to that recorded during filling for the last hot rinse (that of the previous cycle is stored in memory).



## 6.7. - Other possibilities offered by the electronics

### ➤ Display of savings achieved on completion of a cycle

This display of achieved energy and time savings depends on what the sensors have detected.

It only takes place on completion of automatic programs in models with "*interaxio*".

### ➤ Memorisation of the most used cycle from the last 5 cycles.

➤ Children safety device : the access (except "Start" button) is locked from the start of a cycle.

➤ Pause : 1 short pressure on "Start" button is used to stop or restart the current cycle.

### ➤ "Demo" mode for levels of programming with LCD screen :

To enter this mode, press 5 times the "Start" button within less than 5" and one time "Cyclone" button. To exit the "Demo" mode, press the "Cyclone" button for 10".

➤ Enzymatic dwell at 50°C, in order to strengthen the action of the detergent (except for "fast" and "fragile" programs).

## 6.8. - Intuitive internal arrangement

The internal dishwasher arrangement has been optimised and, in particular, the upper basket, in order to facilitate the loading and drying of stemmed glasses. Other points are also to be mentioned :

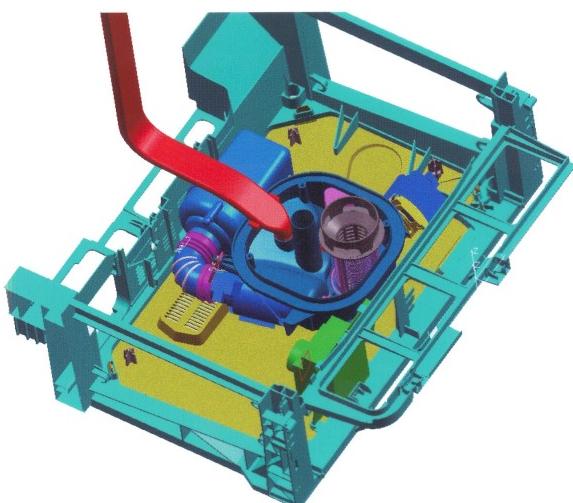
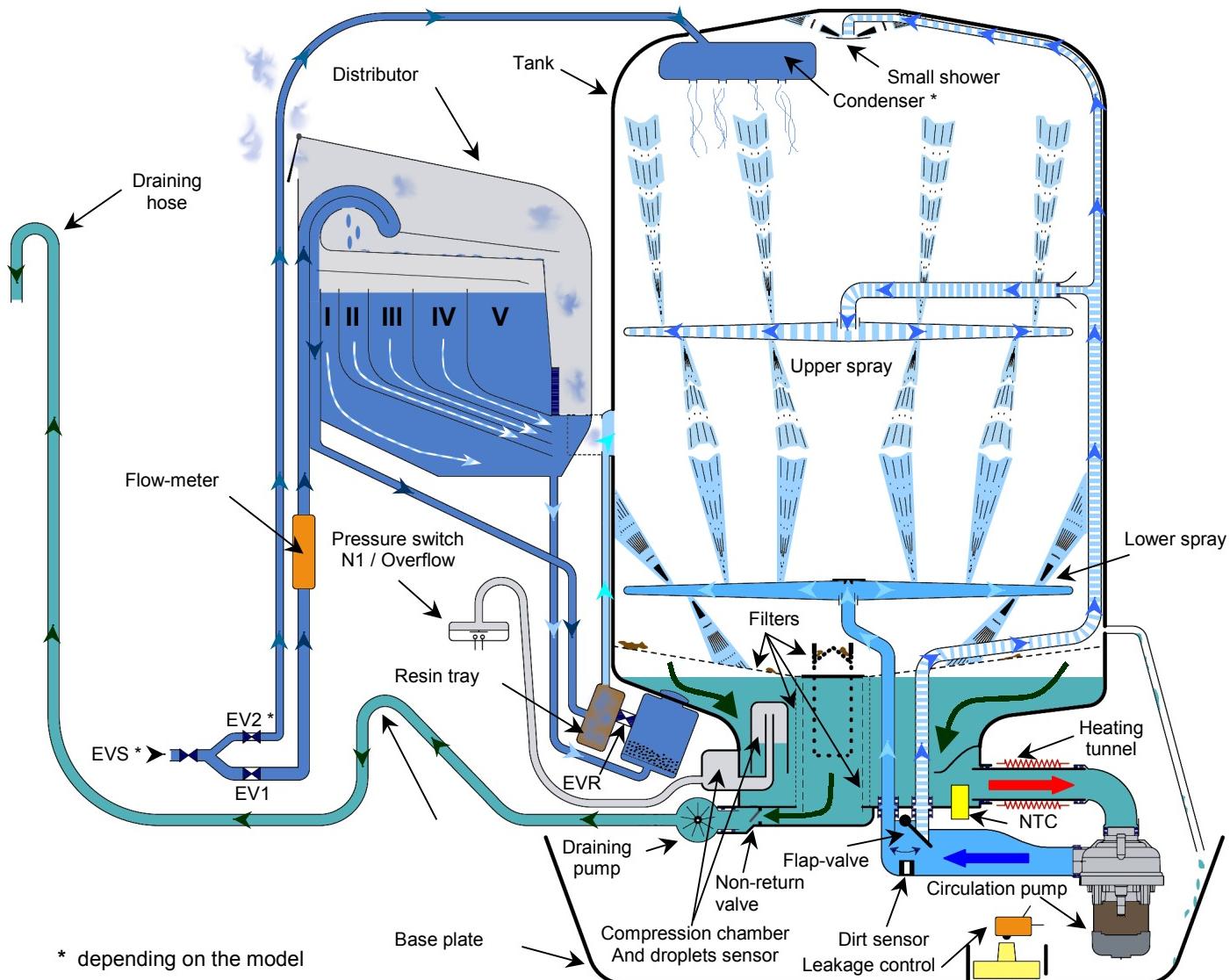
- Mezzanine shelf to accommodate long place settings or silver
- Upper basket with adjustable height
- Folding pins of the lower basket

## 6.9. - Low sound level

In order to meet a significant demand from consumers, many technical changes are used to obtain a low sound level :

- Asynchronous cycling pump with PTC
- Reinforced acoustics
- Internal spraying circuit
- Alternate spraying

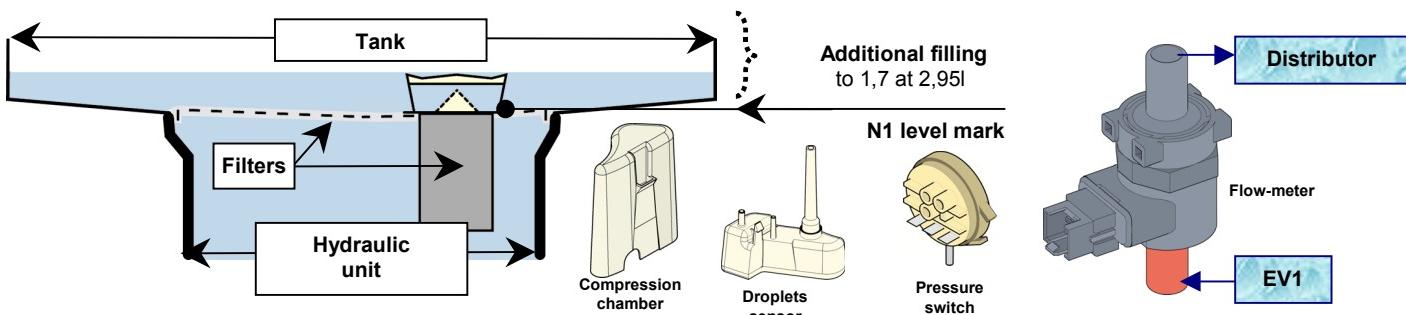
## 6.10. - Hydraulic diagram



- **Horizontal and onboard draining pump :**  
gain in noise and dead volumes
- **Internal cycling ducts:**  
gain in noise, dead volumes and energy
- **Alternate spraying on certain models :**  
gain in noise and water consumption
- **Heating tunnel :**  
rapidity of heating and water saving
- **Suction filters :**  
gain in water consumption

### 6.11. - Precise filling

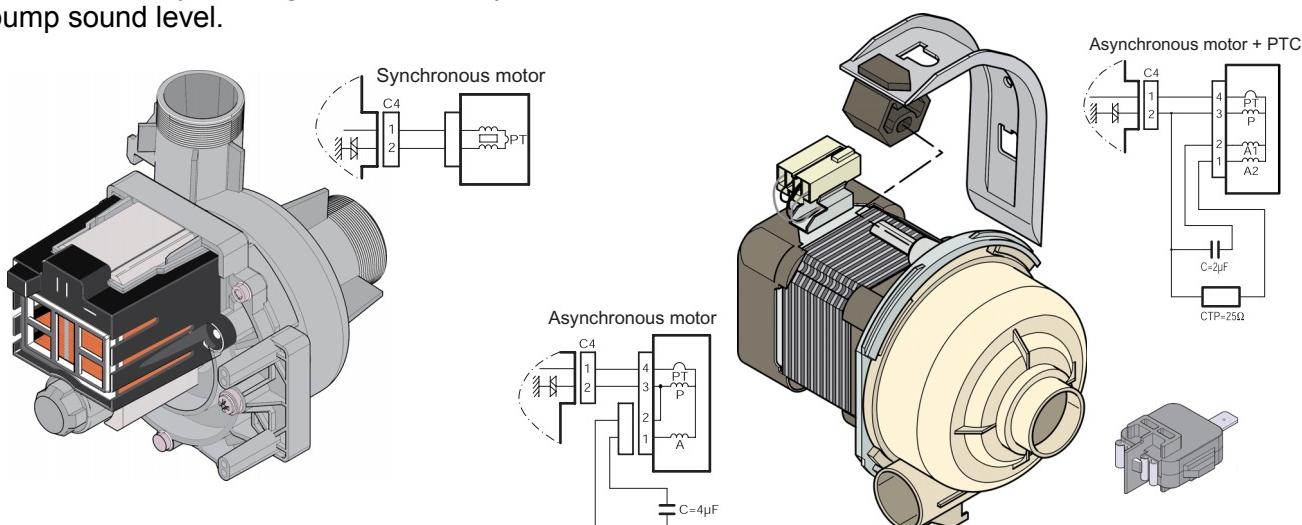
The association of a pressure controller with a flow-meter is used to perfectly control the quantity of water admitted during each filling and to announce a total consumption of 12 litres on certain models.



The flow-meter is a component that measures very precisely the quantity of water admitted by filling solenoid valve EV1. The more or less rapid passage of the water drives a magnetised turbine that acts on a semiconductor supplied from the board.

### 6.12. - The cycling

The ATLANTIS dishwasher can be fitted with a synchronous or asynchronous pump and alternate-spraying valve. A pump internal mechanical system enables the synchronous motor to drive the curved-vane turbine in the right direction. Some models are fitted with asynchronous pump with double auxiliary winding switched off by the PTC after motor start. This process is used to reduce the pump sound level.



### 6.13. - The spraying

The pump pulses the water to the lower winch and upper winch, ceiling small shower and product box.

Certain dishwashers with asynchronous pump are fitted with alternate spraying valve driven by micro-motor and controlled from the board. Using an end-of-travel contact, the board checks the position of a perforated disk that is used to direct the water upwards or downwards only, and possibly towards a rotary nozzle mounted on the lower winch and specially suited to the wash of saucepans. This system is used to both save water and reduce the sound level of ATLANTIS dishwashers.



## 6.14. - Filtering 100% efficient throughout the cycle and easy to access

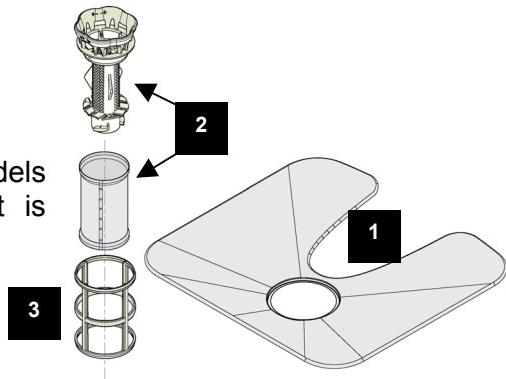
A filtering in suction over four levels ensures perfect recycling of the detergent bath throughout the program. Moreover, it requires less water than a pulsed filter, and the components making it up are easily accessible by the consumer for servicing.

- 1 : main filter
- 2 : two-part waste filter
- 3 : micro-filter

Dishwashers with 4-digit display (programming L2) and models with LCD screen (programming L3) recall the user that it is necessary to perform the filter servicing.

Display **F1B** appears then once every 25 cycles.

No counter reset to 0 is necessary.



## 6.15. - The heating

Heating is ensured by a heating tunnel mounted between the hydraulic unit and the suction of the cycling pump. It is fitted with thermal safety devices (self-resetting thermostat and thermal fuse).

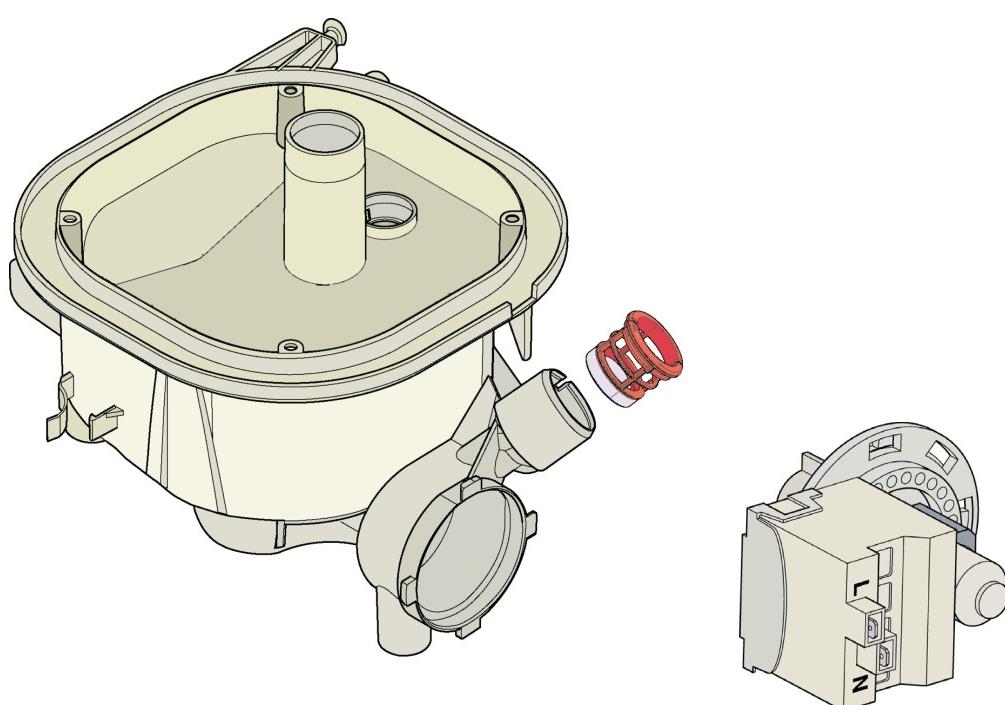
Many advantages of that:

- Faster heating
- No clogging possible
- Requires less water
- Increased safety (as, out of tank)

The bath temperature is read by a probe of NTC type located in the bottom of the hydraulic unit. This probe informs the printed circuit board that ensures water heating and temperature check.

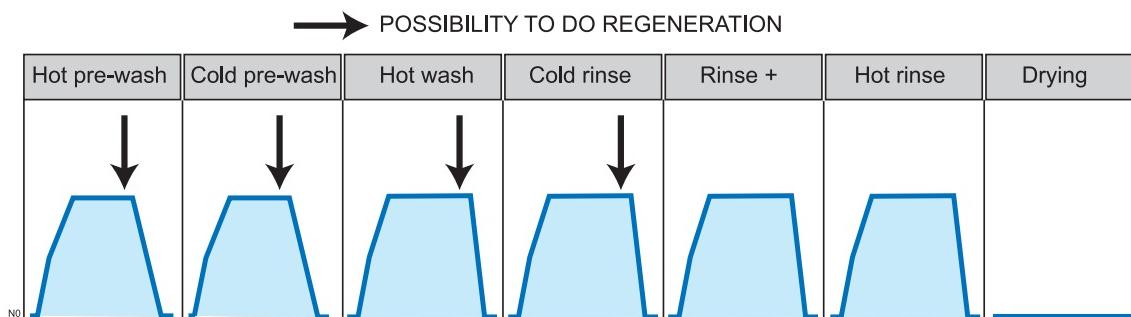
## 6.16. - The draining

The draining is ensured by a synchronous pump mounted horizontal directly on the cycling unit ( $\frac{1}{4}$  turn mounting). This is used to reduce the useless volumes of water. A check valve is placed in the mounting, and a hole for degassing to hydraulic unit prevents pump de-energising.



### 6.17. - The "floating" regeneration (models L0 to L3)

The regeneration controlled by the electronics is not necessarily performed during each cycle. It is said "floating", as it can be integrated in masked time into the program (the total cycle duration is the same with or without regeneration). It can be performed during soaking, cold or hot prewash, wash or first cold rinse. It never takes place during hot rinse before drying; on the other hand an anticipated regeneration can take place if the additional cold rinse is initiated (detection of foam and/or significant load during automatic programs). The objective is to guarantee the best possible water quality before wash heating and especially before drying.



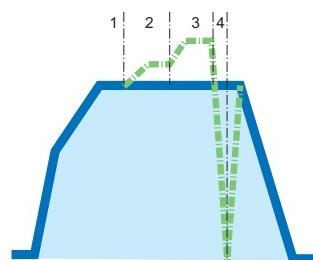
The regeneration initiation will depend, of course, on the setting performed during appliance putting into service (factory setting to 1), but also on the number of baths (L1 of pressure controller), and not on the number of programs carried out. Below is the threshold (number of baths) initiating the regeneration.

Setting	0	1	2	3	4	5
Number of baths before regeneration	No regeneration	16	8	5	4	4

The regeneration phase systematically integrates a rinse of resins without cycling, in order not to send the resin-cleaning residue (chlorides) onto dishes and risk to throw it towards dishes by heating it. Because, this cleaning residue is very calcareous (more than from tap) and salty. Moreover, if the regeneration is to be made before hot wash, then a second static rinse of resins is performed.

The complete regeneration phase is as follows:

- 3 minutes of regeneration valve supply (EVR) to leave the 4 containers of the distributor push the brine from the salt pot to resins (step 1)
- 3 seconds of filling solenoid valve supply (EV1) and 15 seconds of pause to stir up the resins (step 2)
- 3 x (7 seconds of EV1 + 20 seconds of pause) to activate the salt work (step 3)
- Complete draining to eliminate the salt and limestone (step 4)



**For info :** The dishwasher with mechanical access (Lm) does not allow adjusting the regeneration from the front strip (no access board). It is actually necessary to adjust the cursor located in tank. The regeneration will thus be partly performed (association of containers I to V) and during each cycle.

## 6.18. - The drying

The ATLANTIS dishwasher presents three levels of drying, depending on the model :

- **Level 1 "C" (natural drying)**

During the rinse process, the temperature of the dishes is taken up to 73°C. At the end of the programme, a drying phase of about 15 minutes enables the dishes, well drained through the action of the rinsing agent, to evaporate the residual film of humidity by restoring part of the heat accumulated. The steam thus created is partially evacuated by being exposed to air through the exchanger situated in the distributor.

- **Level 2 "B" (drying by condensation)**

In this system a V2 control valve with a low-level output (0.25l/min) supplies several threads of cold water to the rear wall of the tub, enabling almost all the steam to be condensed, which leads to optimum drying and to an avoidance of there being a cloud of steam when the door is opened.

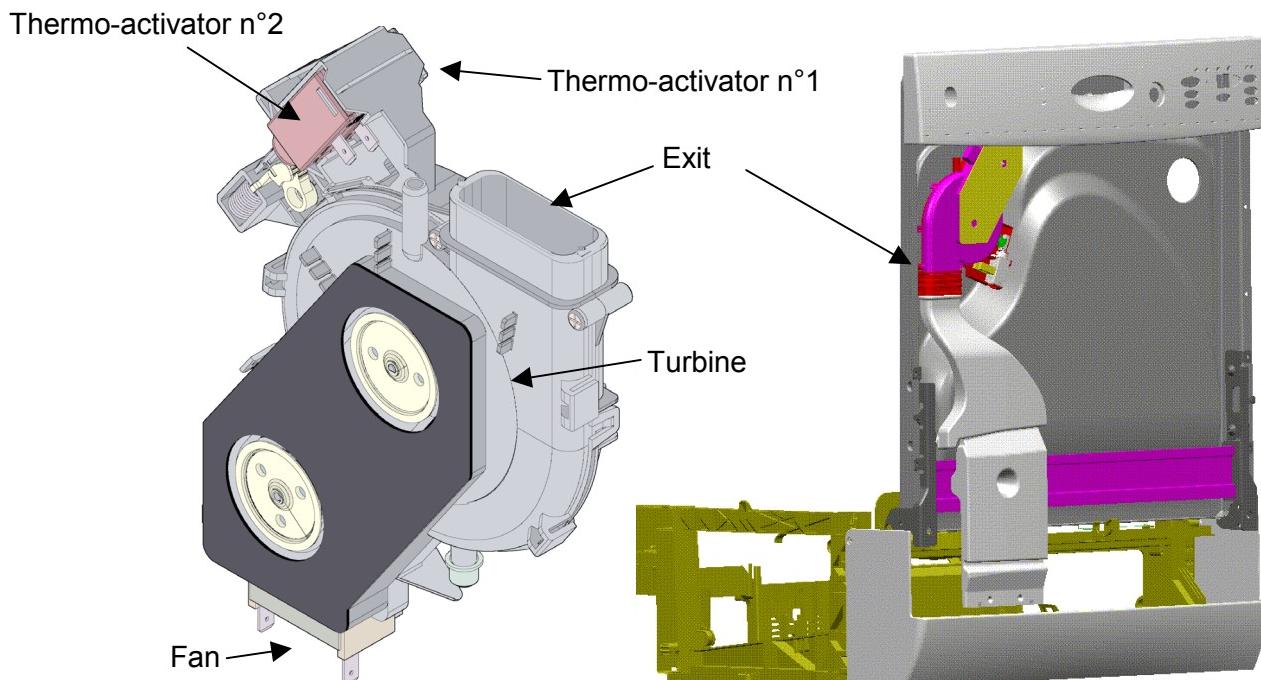
- **Level 3 "A" (Air drying)**

The hot (65°C) and humid air given off by dishes is evacuated to outside the tank through a fan. This air is first mixed with the ambient air to avoid the formation of steam at the dishwasher outlet. A 1st wax actuator partly opens a valve that leaves only approximately 20% of the tank air go to the outside. This first phase lasts approximately 10 minutes. Then, the 2nd wax actuator completely opens the valve, thus allowing the evacuation of all the humid air from the tank. This second phase lasts approximately 15 or 30 minutes depending on the program selected.

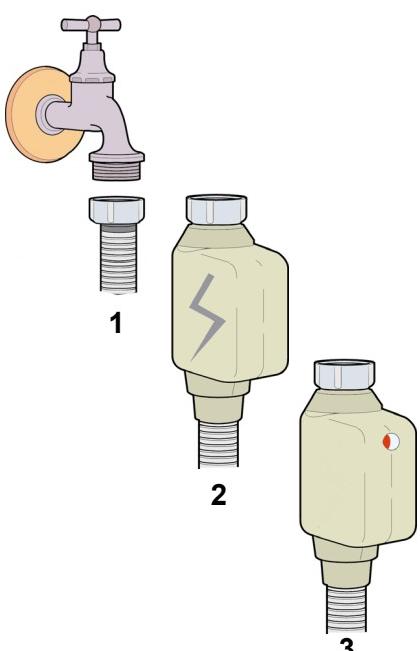
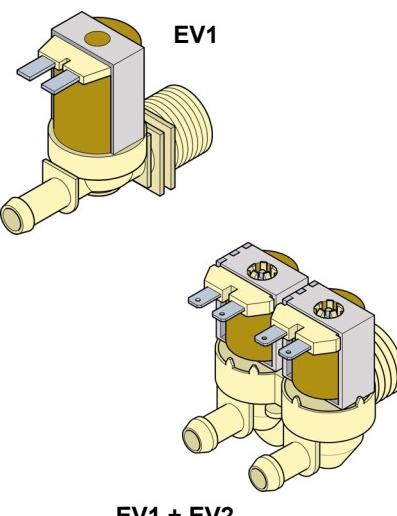
Only the "fast 30'" does not propose ventilated drying.

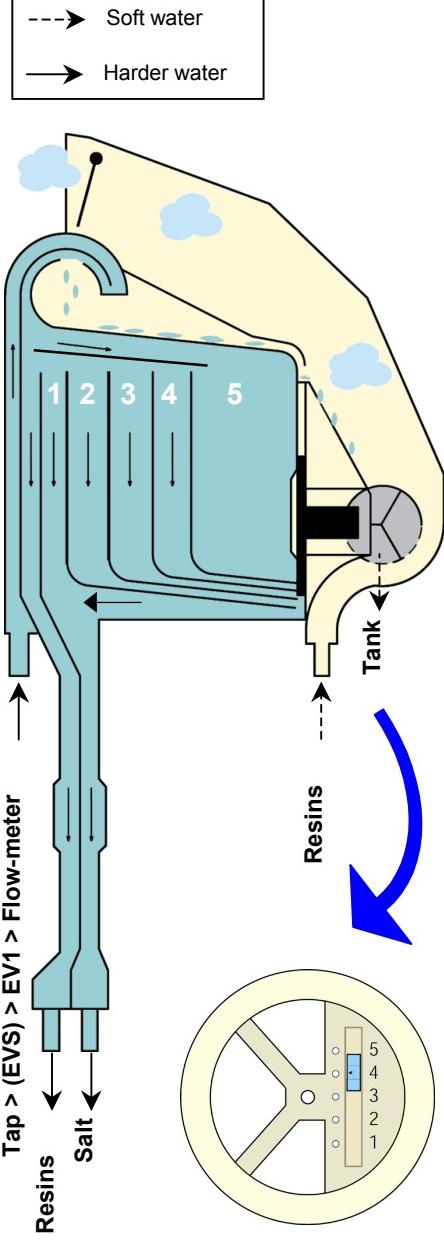
The evacuation of humid air is performed at the bottom for 'free installation' models (through a plastic duct coming out between front panel and plinth). On the other hand, it is performed directly at the top (under front strip) for slot-in dishwashers and square 'free installation' ones.

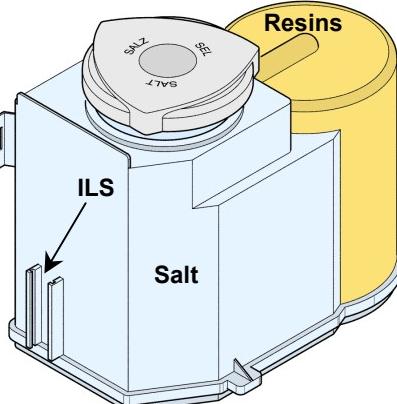
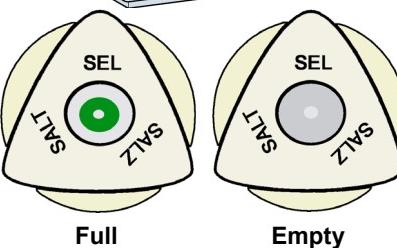
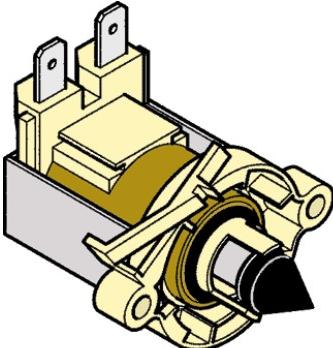
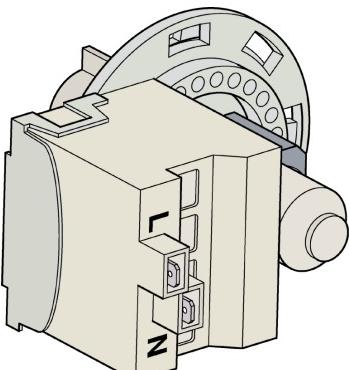
This type of drying cannot be fitted to 'full slot-in' models as a result of the presence of a complete wood panel on the front. Products must neither be installed in a cupboard.

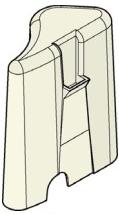
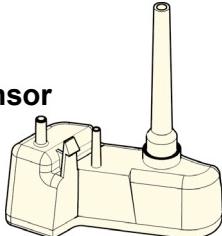
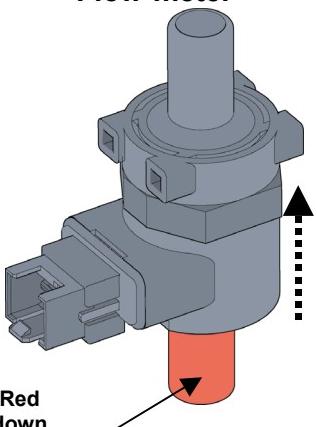
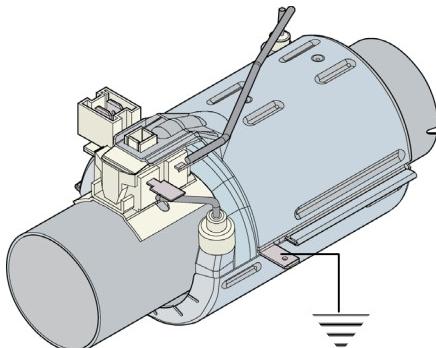


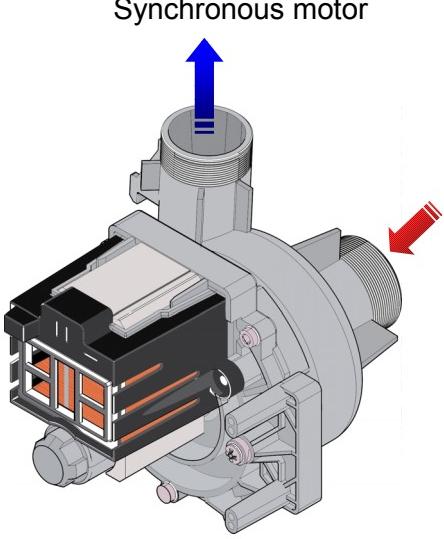
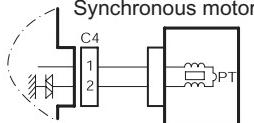
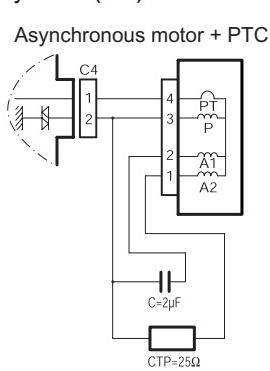
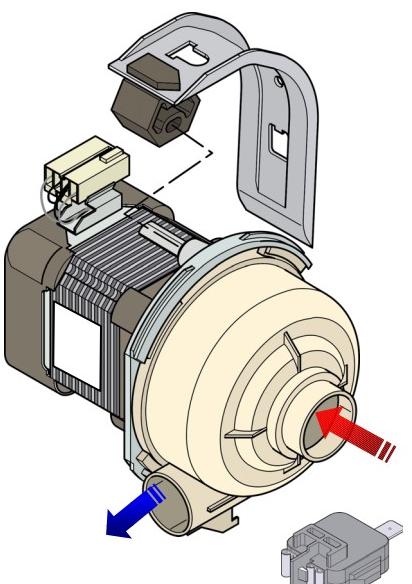
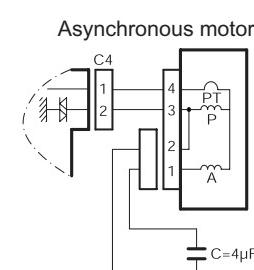
### 6.19. - The different components

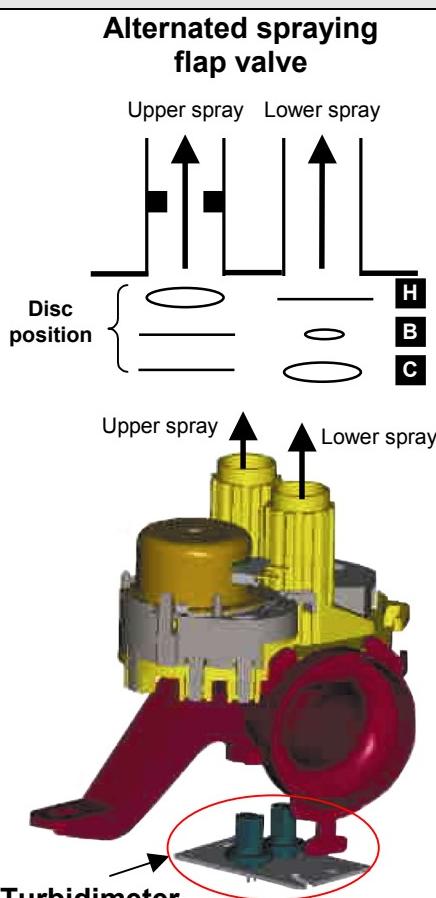
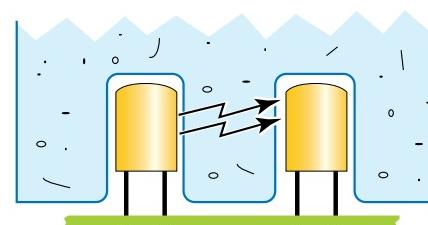
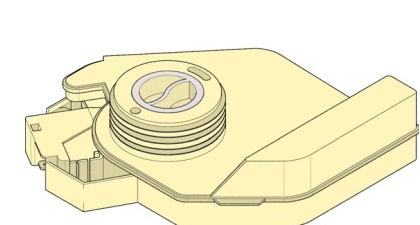
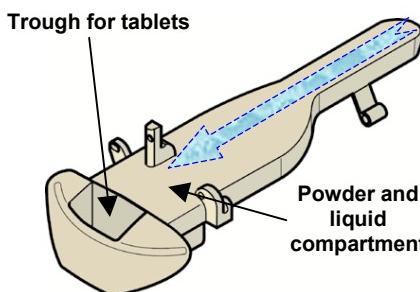
Designation	Function	Characteristics
<b>Water supply pipe</b>  	<p><b>"Aqua stop"</b>. The supply pipe is equipped with a control valve at the tap which cuts off the water supply in the event of the leak control being triggered (by a leak under the machine or an overflow from the tub).</p> <p><b>"Burst proof"</b>. A supply pipe with double casing would act, in the event of a burst in the main pipe, either to shut off a mechanical valve to the tap, or to set off the "aqua stop" by means of the leak control, channelling the water down to the base plate.</p> <p>Or by the supply pipe reinforced with a plaited metal casing, which would avert any risk of the pipe</p>	
<b>Water valve</b>  	Used to fill the dishwasher.	<ul style="list-style-type: none"> <li>• 1 or 2 way</li> <li>• EV1 5 l/min</li> <li>• EV2 0,25 l/min</li> <li>• 220/240V~ (brown coil)</li> <li>• 115V~ (grey coil)</li> <li>• 3,5 kΩ or 1kΩ</li> <li>• Water feed pressure 0,2 to 10 bar</li> </ul>

Designation	Function	Characteristics
<b>Distributor</b>  <p>---&gt; Soft water -&gt; Harder water</p> <p>1 2 3 4 5</p> <p>Resins</p> <p>Tank</p> <p>cursor</p> <ul style="list-style-type: none"> <li>- cursor held at 4 (L0 to L3)</li> <li>- cursor adjusted to 1 at 5 (Lm)</li> </ul>	<p>Ensures the water distribution for wash and regeneration.</p> <p>Ensures evacuation of the steam contained in the tank, in particular during drying, for dishwashers with natural drying (marked C).</p>	<p>Water distribution for filling with soft water (system to distributor, and then distributor to resins and resins to tank). Soft-water reserve of the system for the regeneration (Distributor to salt pot).</p> <p><b>'All electronic' dishwashers L0 to L3 :</b> 4 containers (1 to 4) of hard water empty at the regeneration moment (i.e., 165 ml). The brine in salt pot (in chassis bottom) is thus pushed into the resin pot.</p> <p>If hardness is greater than 70°TH, then it is necessary to replace the decorative strip of the distributor initially locked in position 4, and set it to the maximum, position 5, so that the 5 containers of the distributor empty (i.e., 250 ml).</p> <p><b>Dishwasher with 'mechanical access', Lm :</b> Containers (1 to 5) of hard water empty at the regeneration moment and according to the position of the adjustable cursor of the decorative strip, located in the tank.</p>

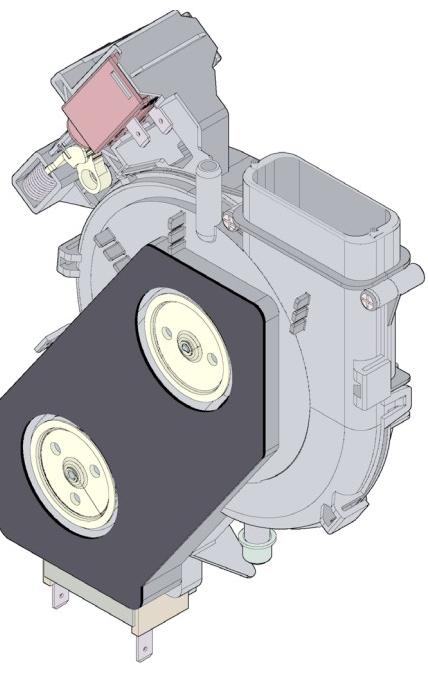
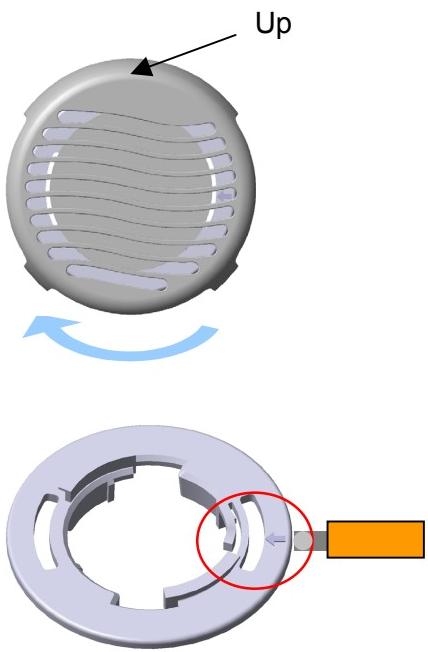
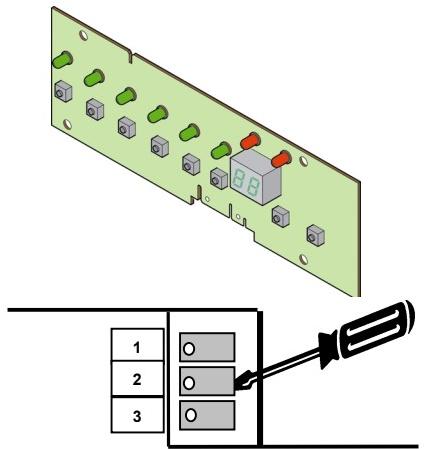
Designation	Function	Characteristics
<b>Softener</b>  	<p>It consists of a salt container and a resin tray joined by a pipe into which the regeneration control valve (EVR) is inserted.</p> <p>When the machine is filling, the water goes through the resin and discharges the calcium and magnesium salts, which remain on the resin: the water is softened.</p> <p>When all the calcium-magnesium ions have replaced the sodium ions, the resin is saturated and no longer softens the water: it has to be regenerated.</p>	<ul style="list-style-type: none"> <li>• Salt compartment 1,4 Kg</li> <li>• Resin tray 0,60 litre</li> </ul>
<b>Regeneration valve</b> 	<p>It leaves the 4 containers of the distributor push the brine from the salt pot to resins.</p>	<ul style="list-style-type: none"> <li>• 220/240V~</li> <li>• 4,5 kΩ</li> </ul>
<b>Draining pump</b> 	<p>Evacuate wastewater.</p> <p>The synchronous pump can turn clockwise or counter-clockwise.</p> <p>To reach its synchronism rate, the turbine must have a freedom degree of approximately 180° with respect to the rotor.</p> <p>The synchronism rate is reached very easily when loaded (with water), the off-load start is, as for it, very irregular (the rotation direction may be reversed several times).</p>	<ul style="list-style-type: none"> <li>• 220/240V~</li> <li>• 250Ω.</li> <li>• 30 W</li> <li>• 15 l/min</li> <li>• Synchronous</li> </ul>

Designation	Function	Characteristics
<b>Pressure switch</b>  <b>Compression chamber</b>  <b>Droplets sensor</b> 	<p>The water level is controlled by a compression chamber in the hydraulic unit and a pressure switch.</p> <p>To obtain a greater precision in the filling, the pressure switch's detection occurs at the level of the upper part of the hydraulic unit at the point where the section is weakest.</p> <p>A complement of water is effected by a flow-meter.</p>	<ul style="list-style-type: none"> <li>• Low level: 11/12</li> <li>• High level: 11/13 (1,85 litres)</li> <li>• Safety: 21/23</li> </ul>
<b>Flow-meter</b> 	<p>The flow-meter measures very precisely the quantity of water admitted by filling EV1.</p>	
<b>Heating element</b> 	<p>Performs heating of the detergent bath.</p>	<ul style="list-style-type: none"> <li>• 220 / 240 V~</li> <li>• 2040 W</li> <li>• 25 Ω</li> <li>• Safety thermostat at 98°C</li> <li>• Thermal fuse at 206°C</li> </ul>

Designation	Function	Characteristics
<b>Cycling pump</b>  	<p>The pump pulses the water to the lower winch and upper winch, ceiling small shower and product box.</p> <p>A pump internal mechanical system enables the synchronous motor to drive the curved-vane turbine in the right direction</p> <p>Some models are fitted with asynchronous pump with double auxiliary winding switched off by the PTC after motor start. This process is used to reduce the pump sound level.</p>	<p><b>Synchronous circulation pump</b></p> <ul style="list-style-type: none"> <li>• 50 l/min</li> <li>• 220 / 240 V~</li> <li>• 110 W</li> <li>• 44Ω</li> </ul>  <p><b>Asynchronous circulation pump with P.T.C.</b></p> <ul style="list-style-type: none"> <li>• 50 l/min</li> <li>• 220 / 240 V~</li> <li>• 90 W</li> <li>• 2µF</li> <li>• P.T.C : 25 Ω at 20°C</li> <li>• Principal coil (3-4) : 102Ω</li> <li>• Auxiliary coil 1 (2-4) : 215Ω</li> <li>• Auxiliary coil 2 (1-4) : 25Ω</li> </ul> 
<b>Asynchronous motor</b>  		<p><b>Asynchronous circulation pump without P.T.C.</b></p> <ul style="list-style-type: none"> <li>• 50 l/min</li> <li>• 220 / 240 V~</li> <li>• 100 W</li> <li>• 4µF</li> <li>• Principal coil (3-4) : 62Ω</li> <li>• Auxiliary coil (1-4) : 92Ω</li> </ul> 

Designation	Function	Characteristics
<b>Alternated spraying flap valve</b>  <p><b>Turbidimeter</b></p>	<p>This system is used to both save water and reduce the sound level of ATLANTIS dishwashers.</p> <p>The micro motor of the back-geared motor drives a disc with alternately obstructs the way to the lower spray (240mbar) or the way to the upper spray (140mbar).</p> <p><b>Turbidimeter :</b> The Turbidimeter (dirt sensor) consists of an infrared emitter and a phototransistor used to assess the state of turbid liquid. It is located on the transparent duct of the spraying valve.</p> 	
<b>Rinsing agent compartment</b> 	<p>Filling with rinsing agent is done when the dishwasher door is opened and closed.</p> <p>The command for the introduction of the rinsing agent is done electronically through a thermo-activator.</p> <p>The value of this product is to improve the drying out of the contents of the dishwasher, by breaking down the surface tension of the water and preventing the deposit of spot marks.</p> <p>The rinsing agent is introduced into the tank when the desired water temperature has been reached.</p> <p>A level detector (ballcock and ILS) or an indicator light (near the cap) demonstrate to the user the need to add more rinsing agent (see instructions).</p>	<ul style="list-style-type: none"> <li>• 220/240V~</li> <li>• 2 kΩ.</li> <li>• Reserve 130ml</li> </ul> <p>Position 1 : 2 cm<sup>3</sup> Position 2 : 3,5 cm<sup>3</sup> Position 3 : 5 cm<sup>3</sup></p>
<b>Detergent compartment</b> 	<p>The hydraulic unit, fixed onto the upper rack for easy access, simplifies the measuring of the detergent.</p> <p>It will take all types of detergent. It has a compartment for powder or gel, and a special place to put the tablets in.</p> <p>A return spring facilitates the fastening. The off-take of the detergent (powder or liquid) occurs when water flows directly into the compartment and overflows.</p> <p>The tablets will dissolve through the spraying action of the middle spray.</p>	<ul style="list-style-type: none"> <li>• powder (40 gr.)</li> <li>• tablet (1)</li> <li>• liquid (130 mil)</li> </ul>

Designation	Function	Characteristics
<b>Filters</b>  1 2 3 4	Ensures perfect recycling of the detergent bath throughout the program <ul style="list-style-type: none"> <li>- main filter (1)</li> <li>- food waste filter and particles filter (2 and 3)</li> <li>- micro-filter (4)</li> </ul>	The filters are located in the middle of the tub and must be cleaned regularly to ensure optimum washing results. Approximately every month the dishwasher (L2 and L3) advises the user to proceed to clean the filters <b>CLEAN</b>
<b>NTC</b> 	The NTC informs the microprocessor on printed circuit board.	<ul style="list-style-type: none"> <li>• 47 kΩ at 25°C</li> </ul>
<b>Condenser</b> 	EV2 control valve with a low-level output (0.25l/min) supplies several threads of cold water to the rear wall of the tub.	
<b>Micro-switch leakage detection</b> 	This system cuts off the water supply if a leak is detected under the machine.	

Designation	Function	Characteristics
<b>Drying fan</b>	Ensure evacuation of the steam contained in the tank	<p><b>Fan</b></p> <ul style="list-style-type: none"> <li>• 220/240V~</li> <li>• 380 Ω.</li> </ul> <p><b>Thermo activator</b></p> <ul style="list-style-type: none"> <li>• 220/240V~</li> <li>• 1 kΩ.</li> </ul>  
<b>Access board</b>	<p>The access board manages</p> <ul style="list-style-type: none"> <li>• the programme management</li> <li>• the temperature</li> <li>• the water level</li> <li>• the safety devices</li> <li>• the D.A.P.</li> <li>• the power card</li> </ul> <p>The visualisation is realised by</p> <ul style="list-style-type: none"> <li>• indicator lights</li> <li>• digital display</li> <li>• LCD screen</li> </ul> 	The access cards are thus specific of each model.
<b>Power board</b>	This card, which is situated at the front of the frame, controls the different components by means of bi-directional triode thyristors or relays (heating), and receives information from the various sensors (pressure switch, door security, NTC...)	

## 6.20. - The washing programmes

➤ **DRENCHING :**

- Cold pre-wash

➤ **INTENSIVE :**

- Washing at 65°C
- Rinse
- Hot rinse
- Drying

➤ **ICS + : Auto-programme adapted to the amount of items and levels of residue.**

- Cold pre-wash
- Washing at 70°C
- Rinse
- Hot rinse
- Air drying or drying by condensation

➤ **ICS :**

- Washing at 60°C
- Rinse
- Hot rinse
- Air drying or drying by condensation

➤ **NORMAL :**

- Washing at 55°C
- Rinse
- Hot rinse
- Drying

➤ **ECO :**

- Washing at 45°C
- Rinse
- Hot rinse
- Drying

➤ **ECO WASH :**

- Cold pre-wash
- Washing at 50°C
- Rinse
- Hot rinse
- Air drying

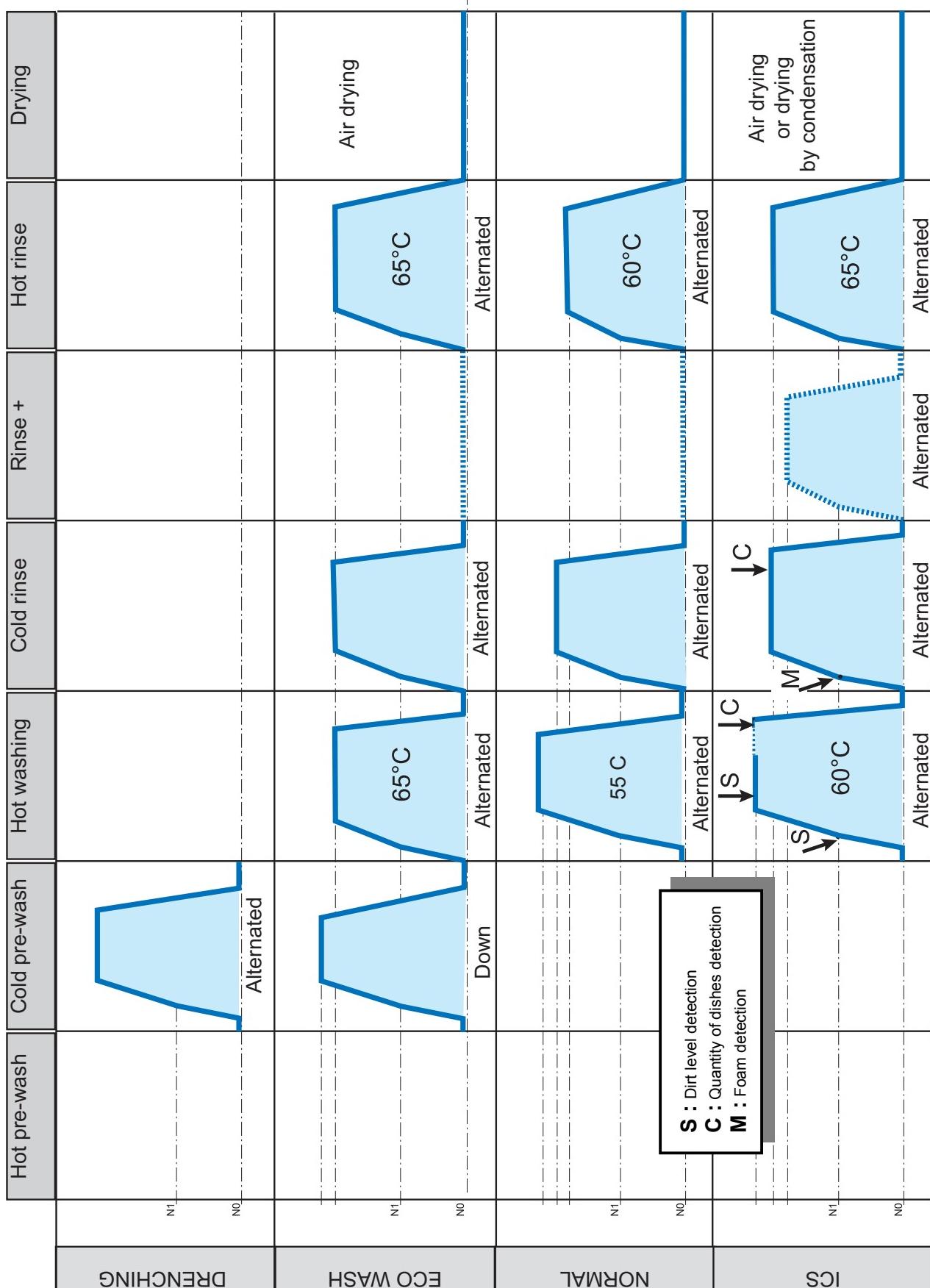
➤ **FRAGILE :**

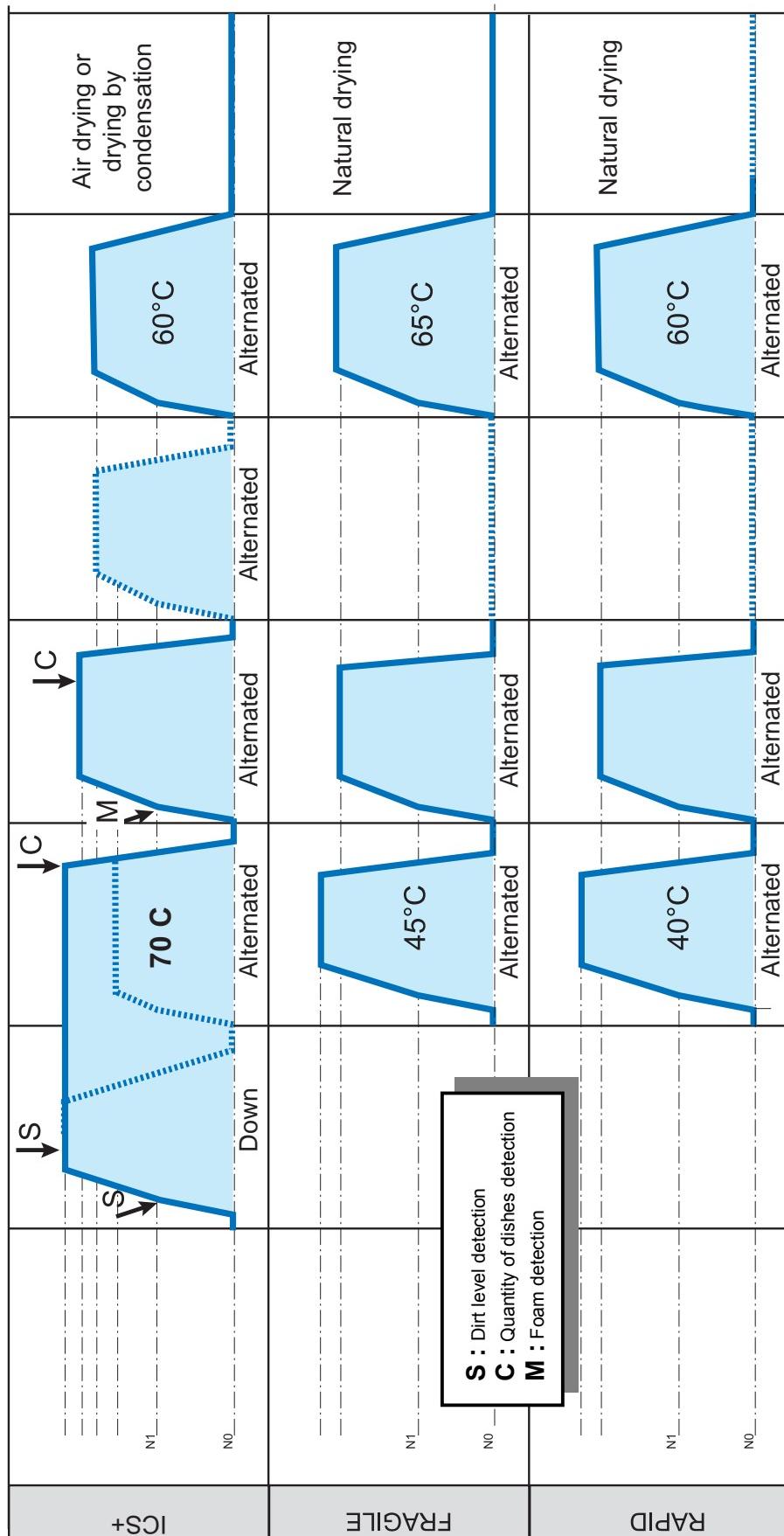
- Washing at 45°C
- Rinse
- Hot rinse
- Natural drying

➤ **RAPID :**

- Washing at 40°C
- Rinse
- Hot rinse
- Natural drying

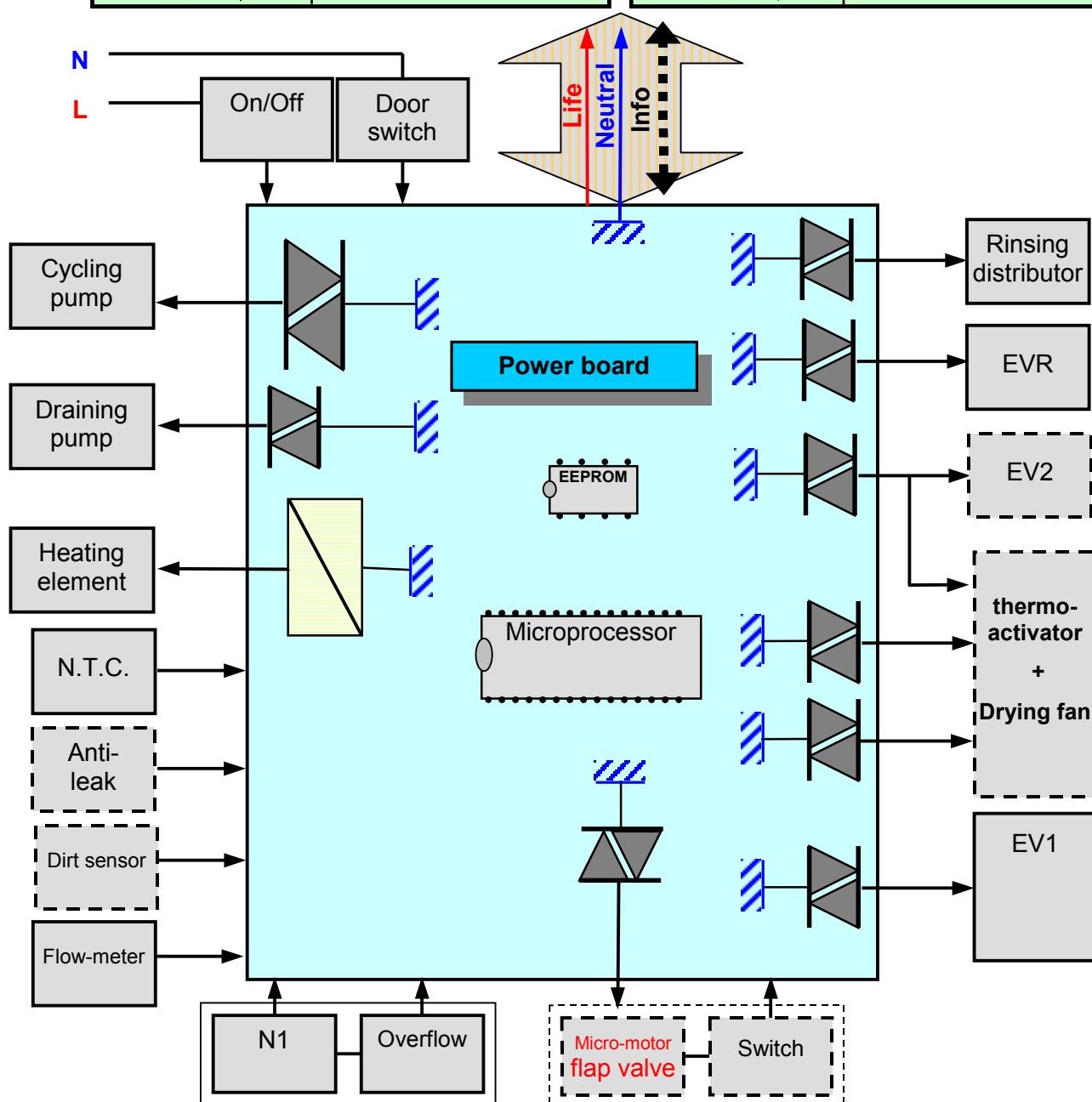
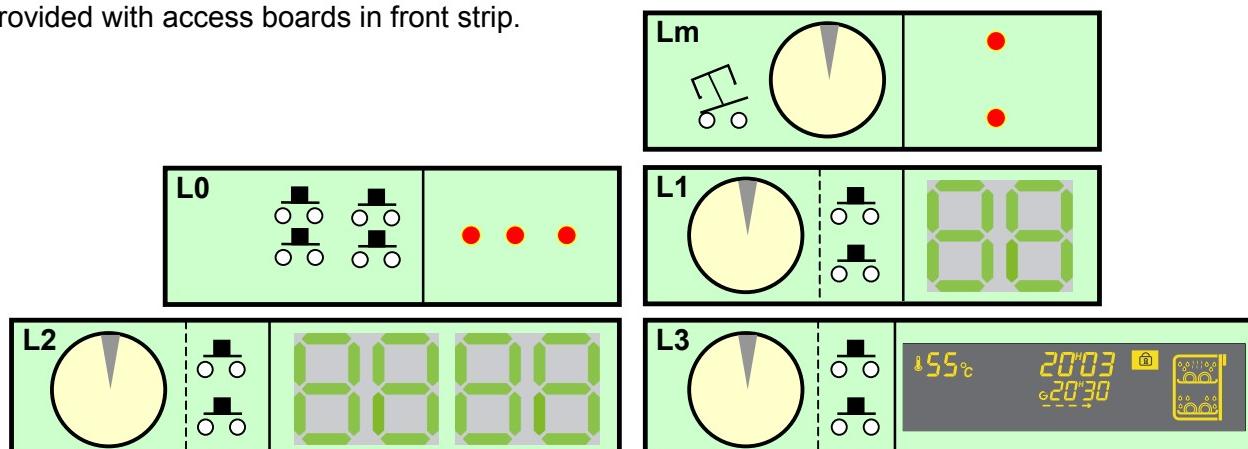
## 6.20.1. - Programmes



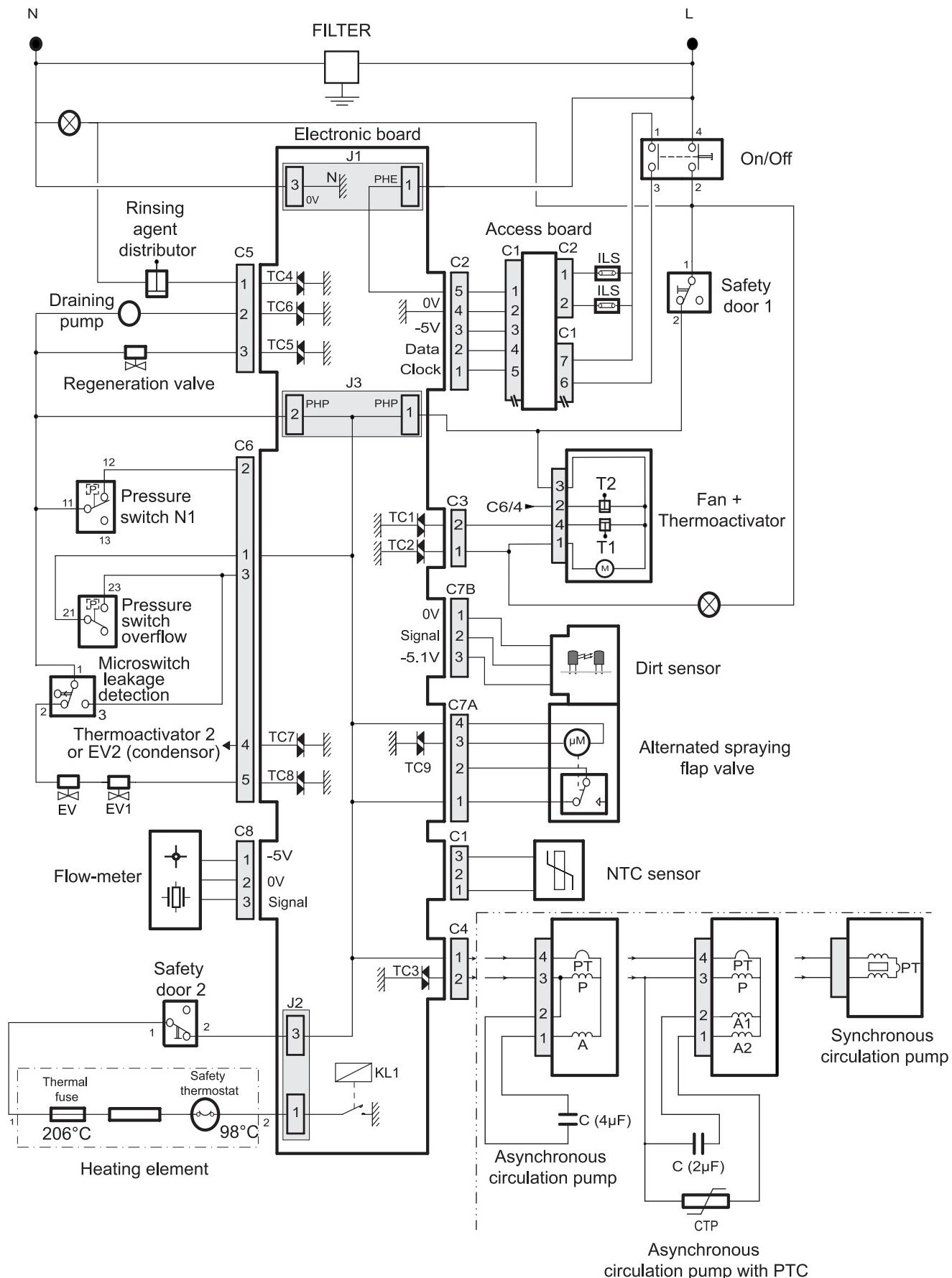


### 6.21. - Synoptic

Is the access that differentiates the five levels of programming 'All electronic' dishwashers L0 to L1 are fitted with access printed circuit boards. 'Mechanical access' models are fitted with selectors and are not provided with access boards in front strip.



## 6.22. - The block diagram



## 6.23. - The diagnosis assistance programme (DAP)

Complete DAPs that are used to control all the appliance functions and give a certain number of codes used to know the faulty function.

Positions, names of Leds and buttons differ according to the product and the programming level. This is the reason why the access described below is given as an example. It corresponds to dishwashers of level L2 with 4 digits, program selector, and spraying valve. On the other hand, all the DAPs follow the same run.

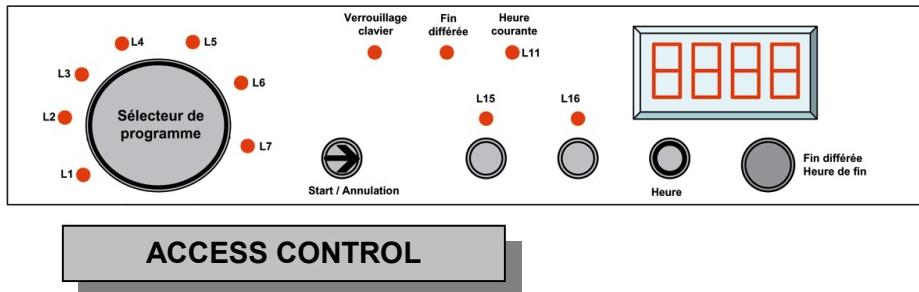
CODES	CONTROLES
01	Filling
02	Draining
03	Heating
04	NTC
05	Flow-meter
06	Dry sensor
07	Leakage

### ➤ Important information

- The change from one step to the next one is performed from "Start" button. It is therefore possible to skip one or more steps (except those where level or temperature servo-control is necessary).
- It is possible to disconnect the appliance during the DAP, in order to check the faulty circuit, and then to connect it again to continue the DAP.
- To cancel the DAP, the "Start" button must be kept down for more than 2 seconds.

### ➤ Access to diagnostic assistance programme (DAP)

Press "Start" 5 times within less than 5". All LEDs are flashing in succession and the entire display lights up.



#### • Check of the program selector :

After "Start" is pressed, the left two digits indicate "**01**"

Turn the program selector and check that only one LED lights up at each time.

#### • Check of the time setting encoder :

An encoder rotation causes an 8 to be displayed and then gone off on each crossing of index notch.

#### • Check of buttons :

Pressing the buttons makes the related LED to come on or go off.

Caution: pressing the "Start" button causes the DAP to go to the next step.

After a pressure on "Start" button, the left two digits indicate "**02**"

#### • Check of the thermistor and turbidimeter :

After 3", alternate display of the possible faults on the right 3 digits.

<b>d 0 4</b>	Thermistor fault (value out of range)
<b>d 0 6</b>	Turbidimeter fault (value out of range)

After a pressure on "Start" button, the left two digits indicate "**03**"

#### CHECK of COMPONENTS

Remark: if there is no dialogue between display board and power board, then all the Leds go off and it is impossible to continue (check the link between the two boards).

- **Check draining pump and EV2 or fan + drying valve no.1 :**

"Soaking", "Intensive" and "Bio" LEDs come on alternately. The absence of low level is detected after 30' and is displayed over the right 3 digits.

**d 0 2** Draining fault (draining duration until low level > 30")

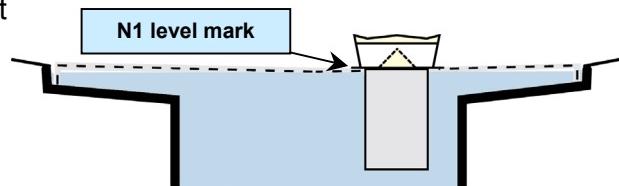
Remark: Impossible to continue if the machine remains at full level.

- **Check of the filling and of EV1 :**

After a pressure on "Start" button, the left two digits indicate "**04**"

"Optiwash" LED flashes as long as the level is low. As soon as L1 is attained, the LED comes on steady and the DAP changes automatically to the next step.

At this very instant (listen attentively to the pressure controller noise), it is possible to open the door and check the water level in the tank, and then close the door to continue the DAP.



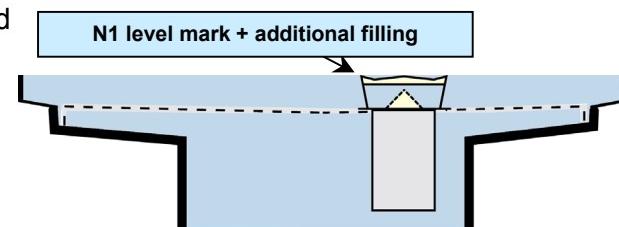
The absence of high level is detected after 6' and is displayed over the right 3 digits.

**d 0 1** Filling fault (L1 not attained after 6 minutes)

Remark: Impossible to continue if the machine remains at empty level.

- **Check of flowmeter filling :**

Both left digits display "**05**" and "Optiwash" and "Soaking" LEDs come on alternately.



If the value read is abnormal, then the flow-meter filling fault is displayed over the right 3 digits.

**d 0 5** Flow-meter fault

Remark: It is necessary to wait until filling completion to be able to go to the next step.

- **Check of the cycling pump and motorised valve :**

After a pressure on "Start" button, the left two digits indicate "**06**".

"Optiwash" and "Soaking" Leds come on alternately and the valve operates in accelerated alternation (install transparent door 31X5364):

... 5" down / 19" inversion / 15" up / 5" inversion...

Remark: If the valve positioning contact is defective, then the micro-motor does not stop and alternations are more rapid.

- **Check of heating (with cycling) :**

After a pressure on "Start" button, the left two digits indicate "**07**"

During the heating, the "Optiwash" LED is flashing. As soon as the board detects a rise by 5°C, the heating stops and the "Optiwash" LED comes on steady.

The heating fault is validated after 5' and is displayed over the right 3 digits.

**d 0 3** Heating fault (temperature rise < 5°C after 5 minutes)

- **Check of the regeneration valve (without cycling) :**

After a pressure on "Start" button, the left two digits indicate "**08**".

"Optiwash" and "Soaking" Leds come on alternately. Check the draining of the distributor regeneration containers.

- **Check of the rinsing product thermo-activator (without cycling) :**

After a pressure on "Start" button, the left two digits indicate "**07**".

"Intensive" and "Fragile" Leds come on alternately. After a few instants, check the product discharge on the inner door (wipe it off and close the door to continue the DAP).

- **Check of the draining pump and drying valve no.2 (if fan) :**

After a pressure on "Start" button, the left two digits indicate "**10**".

10" cycling (the "Fragile" LED is flashing) followed by the supply to draining pump & drying actuator no.2 (disassemble the plastic mask from the inner door and check the valve for complete opening). The "Fragile" LED flashes during the draining and comes on steady as soon as the low level is attained.

The absence of low level is detected after 30" and the fault is displayed over the right 3 digits.

<b>d 0 2</b>	Draining fault (draining duration until low level > 30s)
--------------	--

Remark: The change to next step is automatically performed. But it is impossible to continue if the machine remains at high level.

- **Exit from DAP:**

The left two digits indicate "**11**". At this stage only, you just have to de-energise the dishwasher or press "Start" button again.

➤ **Detection of leak or overflow:**

Detected throughout the DAP by the appearance of L2 (overflow) or by the action of the float contact. The fault is displayed over the right 3 digits.

<b>d 0 7</b>	Leak fault (initiation of the anti-leak device)
--------------	---

## 6.24. - The electronics-controlled safety devices

➤ **Heating**

- **NTC cut or shorted:** heating steps skipped. (Fault 04 in the DAP).
- **No heating:** if, after 50' minutes, the temperature is not attained, then the current heating step and those to come will be skipped (fault 03 in the DAP).
- **Dry heating:** the self-resetting safety thermostat (98°C) cuts momentarily the heating tunnel. If there is no water in the cycling unit, then the ohmic value of the NTC does not change and the electronics controls the "no heating" safety device.  
A thermal fuse (206°C) incorporated in the heating tunnel ensures total safety by switching off definitely the tunnel (case of a faulty self-resetting thermostat).

➤ **Filling**

- **Check of the pressure controller filling:** if, after 6' supply to EV1, the high level is not attained, then the program is cancelled (fault 01 in the DAP). A logo "cock closed" appears on the LCD display unit for L3 programming. Opening the cock and pressing "Start" is used to restart a new cycle.
- **Check of the additional flow-meter filling:** the electronics checks the flowmeter signal and if the flow-rate measured is smaller than 2 litres/minute, the additional filling is performed statically and in a chronometric way (47") or by cycling until high level 1 of the pressure controller is recovered (non-blocking fault 05 in the DAP).

➤ **Overflow or leak** (float)

When the board receives this information, it supplies the draining pump and then:

- The fault disappears. The electronics infers that the matter is an overflow and applies then supply pulses to EV1 in order to drive out possible impurities.  
**ATTENTION** : if, during the same cycle, there is a 2nd initiation of overflow, a complete draining is performed and then the program is cancelled. Then, it will no longer be possible to restart a new cycle without previously pressing ON/OFF.
- The fault does not disappears while the tank is empty (contact 11-12 of the pressure controller closed). The electronics infers that this is the anti-leak float, which is triggered. The current program is then cancelled and it is impossible to restart a new one as long as the anti-leak micro-switch is tripped. A fault code "07" appears in the DAP.

➤ **Draining**

The pump is fitted with a thermal safety device.

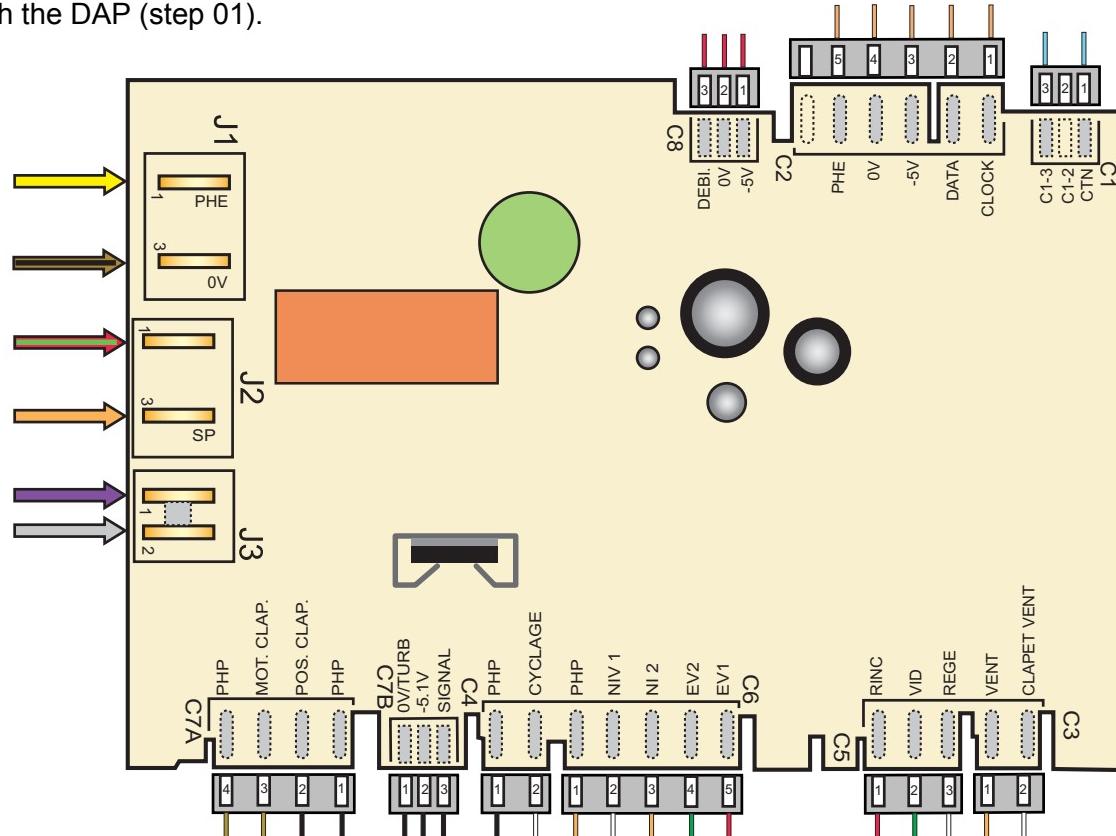
- If, after 30" supply, the low level is not attained, then there is a 5" pause and then a new supply to the pump for 30" and so on (code 02 in the DAP).

➤ **Mains cut**

In the event of a mains cut, the information is stored infinitely in EEPROM memory. On re-energising, the program is resumed from where it was before the cut. For models with time display, the clock is reset to 0 and flashes.

## 6.25. - Checks and measurements possible at power board terminal strips

To test most of the components in the operating dishwasher, therefore with door closed, you just have to remove the plinth and move the power board forward on the left-hand side. The access board is checked with the DAP (step 01).



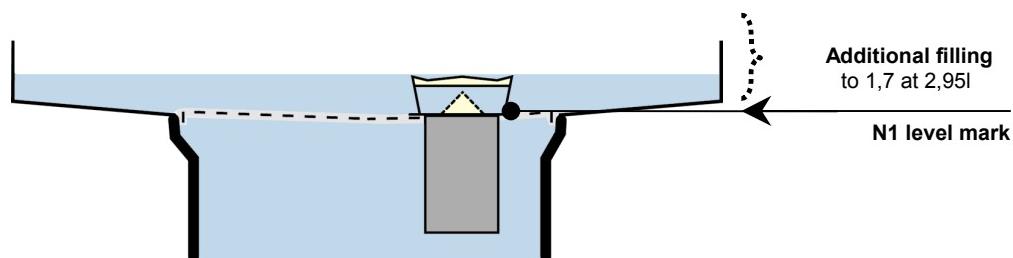
**CAUTION:** All the measurements are made in connectors disconnected from the power board.

Elements	Mark				Values	Remark
N.T.C	C1/1	Blue	C1/3	Blue	47 kΩ	At 25°C
Dry sensor	C7B/1 or 2	Flat cable	C7B/3	Black	-	Not measurable
Draining pump	J3/2	Grey	C 5 /2	Green	250 Ω	-
Pressure switch N0 (11-12 closed)	J3/2	Grey	C6/2	White	0 Ω	Empty tank
EV2	J3/2	Grey	C6/4	Green	3,5 kΩ	Drying by condenser
Drying fan	J3/1	Violet	C3/1	Orange	380 Ω	Air drying
Thermo activator n°1	J3/1	Violet	C3/2	White	1 kΩ	Air drying
EV1	J3/2	Grey	C6/5	Red	3,5 kΩ	2 kΩ if EVS
Pressure switch N1 (11-13)	J3/2	Grey	C6/2	White	Infinity	Full tank
Flow-meter	C8/1 or 2	Red	C8/3	Red	Signal	Not measurable
Asynchronous circulation pump with PTC and capacitor (2 µF)	C4/1	Black	C4/2	Orange	28 Ω	
Asynchronous circulation pump with capacitor (4 µF)	C4/1	Black	C4/2	Orange	60 Ω	-
Synchronous circulation pump	C4/1	Black	C4/2	Orange	44 Ω	-
Alternated spraying flap valve motor	C7A/3	Brown	C7A/4	Brown	6 kΩ	-
Alternated spraying flap valve position switch	C7A/1	Black	C7/2	Black	0 Ω or infinity	0 Ω (position B) or infinity
Heating element	J2/1	Red/Green	J2/3	Orange	25 Ω	Door closed
EVR	J3/2	Grey	C5/3	White	4,5 kΩ	-
Rinsing agent distributor	J3/1	Violet	C5/1	Red	2 kΩ	Door closed
Thermo activator n°2	J3/1	Violet	C6/4	Green	1 kΩ	Air drying
Draining pump	J3/2	Grey	C5/2	Green	250 Ω	-
Pressure switch overflow (21-23)	C6/1	Orange	C6/3	Orange	0 Ω	Overflow
Micro-switch leakage detection	J3/2	Grey	C6/3	Orange	0 Ω	Leakage
PTC	On capacitor 2 µF				25 Ω	At 20°C

## 6.26. - Water height in tank from pressure controller switching

After static and servo-controlled filling (high L1 of the pressure controller attained and 11-13 closed), it is possible to check the water height in tank by opening the dishwasher door. The water should attain the base of the visible section of the movable filter. High level 1 corresponds to 1.85 litres of water in the cycling unit.

**ATTENTION :** Check level 1 from pressure controller switching (noise perceptible) and before the additional flow-meter filling, which varies from + 1.7 litres to + 2.95 litres depending on the program and on the dishwasher.







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